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THESIS

MULTI-PHASE SOURCE SELECTION STRATEGY ANALYSIS

by

James F. Hiles

December 2000

Thesis Advisor: Jeffrey Cuskey

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13. ABSTRACT

This thesis analyzed the use of a multi-phase source selection strategy at the Naval Air Systems Command. Points noted in four case studies were contrasted with policies and practices. Three essential characteristics of the multi-phase source selection strategy are that phases are used to fully understand requirements to the point that program risk is reduced, changes to requirements do not have to be re-competed and no Justification and Approval is required for other than full and open competition when going into a follow-on phase considering only offerors from prior phases. Factors identified when the proposed multi-phase source selection strategy is appropriate include: (1) confidence in the ability to determine a fair price without supplier cost data; (2) a fluid requirement; (3) potential to take advantage of commercial technology; (4) time to fully accommodate exploratory phases prior to or at the start of the program; (5) adequate commitment of funds to accommodate potential growth in funding requirements during requirement development phases; (6) experienced personnel willing to adopt new strategies and engage in revised behavior patterns and (7) organizational willingness to modify regulatory guidance as needed to accommodate the intended strategy.

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MULTI-PHASE SOURCE SELECTION STRATEGY ANALYSIS

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Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF SCIENCE IN MANAGEMENT

from the

NAVAL POSTGRADUATE SCHOOL
December 2000

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ABSTRACT

This thesis analyzed the use of a multi-phase source selection strategy at the Naval Air Systems Command. Points noted in four case studies were contrasted with policies and practices. Three essential characteristics of the multi-phase source selection strategy are that phases are used to fully understand requirements to the point that program risk is reduced, changes to requirements do not have to be re-competed and no Justification and Approval is required for other than full and open competition when going into a follow-on phase considering only offerors from prior phases. Factors identified when the proposed multi-phase source selection strategy is appropriate include: (1) confidence in the ability to determine a fair price without supplier cost data; (2) a fluid requirement; (3) potential to take advantage of commercial technology; (4) time to fully accommodate exploratory phases prior to or at the start of the program; (5) adequate commitment of funds to accommodate potential growth in funding requirements during requirement development phases; (6) experienced personnel willing to adopt new strategies and engage in revised behavior patterns and (7) organizational willingness to modify regulatory guidance as needed to accommodate the intended strategy.

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I. INTRODUCTION

A. BACKGROUND

1. Price-Based Acquisition

The Department of Defense (DoD) looks to increased use of Price-Based Acquisition (PBA) as a way to conduct business in a manner that is more closely aligned with current practices in the commercial sector. Through increased use of PBA and commercial buying practices three objectives are sought: (Ref 8)

- Increase access to leading edge technology available only in the commercial sector
- Reduce Government infrastructure
- Obtain better value in what is purchased

The DoD defines PBA as a way to buy goods and services that does not rely primarily on a supplier providing cost data (Ref 8).

The DoD chartered a study group on implementing PBA. This group authored an extensive report (Ref 8) in which a number of conclusions and recommendations were made. The DoD had used fixed-price development contracts in the 1980s, with poor results. The study group noted that a significant issue driving those poor results was inadequate communication between industry and Government. Communications between Government and industry took place via a formal process. This formal process hindered complete understanding of complex technical requirements and development work. The study group met with industry representatives to determine why this was the case. Their conclusion was that the commercial approach of collaborative interaction with suppliers led to an increased understanding of buyer requirements. This increased level of understanding facilitated the use of fixed-price contracts. In comparison to commercial approaches, statutory and regulatory restrictions in Government

acquisitions prevented the Government from achieving this increased level of understanding between buyer and seller. (Ref 8)

One proposal of the PBA chartered study is a multi-phase source selection process. This process is intended to address the risk present in acquisitions due to constrained understanding of Government requirements. Facilitating freer and more open communication between buyer and seller can lower the risk level such that fixed-price contracts may be appropriate in complex acquisitions. (Ref 8)

The DoD undertakes complex acquisitions and procuring organizations are risk averse. This combination results in the use of cost-based contracts. When assessing risk at the program level without a complete understanding of requirements by both industry and Government, cost-based contracts generally result. Contracts are awarded and work commences before a complete understanding of the requirements is achieved. In the proposed multi-phase source selection, risk is broken down into discrete increments as opposed to the traditional method of dealing with risk at the level of the entire program. (Ref 8)

The recent Federal Acquisition Regulation (FAR) Part 15 rewrite advocated using a more extensive negotiating process with the highest rated offerors. The Government uses methods such as pre-solicitation notices or Request for Proposals (RFP) to communicate requirements to industry. Acquisition practitioners recognize shortcomings in the execution of these vehicles. FAR Part 15 specifically encourages early exchanges of information about future acquisitions with industry. Feedback to the Government is desired, but often what is received is superficial. Industry avoids critical feedback of requirements to avoid offending the customer and providing insight to competitors about their proposed solutions. (Ref 8).

To accurately respond to a solicitation, offerors need to make trades in cost, schedule and performance. In order to make these trades, alternative proposals must be submitted. This presents a large risk to the offeror. An alternative proposal may be rejected for not meeting all requirements, even when there are no other proposals technologically feasible at their stated

prices. Disclosure gives competitors an opportunity to mirror trades made in cost, schedule or performance. An outcome of this process is overly optimistic technical proposals. Better alternatives are offeror identification of unrealistic requirements or more realistic price estimates. Lack of requirement understanding results in the use of cost-based contracts. The Government ends up not recognizing the need to alter prohibitively expensive or technologically unachievable requirements. This is a significant shortcoming in FAR Part 15 methods. (Ref 8)

Risk-averse acquisition organizations tend to include all offerors in the process, even when allowed to eliminate those less competitive by the FAR. The acquisition process is frequently pushed forward by external time constraints, such as funding timelines. This places limits on the level of communication between industry and Government, with adverse unintended consequences surfacing later during contract execution. (Ref 8)

A key distinguishing element of the multi-phase source selection strategy is that discussions are unique to each offeror. Treating offerors fairly does not mean that the same information is shared with each. (Ref 8)

In the proposed multi-phase source selection, sources are initially selected following evaluation of capability statements. The capability statement includes limited information such as: (Ref 8)

- Past performance of the contractor for the same or similar work
- Ability to perform the required work
- Conceptual approach to performing the work
- Rough order of magnitude price estimate for the conceptual approach

Government requirements are initially stated as objectives, and may be refined through one or a succession of phases. The goal is to reach a point of understanding where fixed-price contracts can be used to allocate risk between the Government and industry. The number of sources competing may be reduced in each phase. The first two phases consist of proposal

development and requirements development. Both phases are not necessary. Sources can be selected to participate in follow-on phases based on being included in an earlier phase. Proposed statutory language allows for award to limited sources without reopening the competition. This change negates the need for a Justification and Approval (J&A) for other than full and open competition when limiting sources in this manner. (Ref 8)

Government requirements can continue to evolve throughout all phases. If the Government desires to do this, it is stated upfront in the solicitation. Changes can be made without amending the solicitation. There is no stated upper limit on the number of phases used and award can be made to one or more offerors. (Ref 8)

2. Current Practices

The US Coast Guard is using an innovative evolutionary source selection process to award a contract intended to replace a large portion of its assets. The assets in question support missions that take place greater than fifty miles from land. This is called the Deepwater mission. Timely acquisition of resources that use available technology is a stated objective. Commercial and military technology combinations are being innovatively incorporated in a system of systems deliverable.

The Deepwater project is currently at the point of completing the second portion of phase I activities, that of functional design. Phase I consists of two parts, conceptual design and functional design. In conceptual design the contractors developed proposed concepts to about the 50 percent mark. Three out of four competitors were awarded phase I contracts in August 1998. The prime contractors were Lockheed Martin, Avon-Dale Industries, Inc., and Science Applications International Corporation (SAIC). In the functional design phase the industry teams refined their concepts to about the 80 percent mark. The start of phase II is a competitive decision point. The Coast Guard intends to award a contract for detailed design and construction to one of the three industry teams in January 2002. This award will be based on an evaluation of

proposals in terms of maximizing operational effectiveness while minimizing total ownership cost. (Ref 17)

The Deepwater source selection methodology was developed independently from the refinement of the multi-phased source selection methodology outlined in the DoD PBA report. Issues surfaced in the planning and execution of the Deepwater source selection are both similar and relevant to issues addressed in the proposed multi-phase source selection methodology. The Deepwater project represents one of a number of Federal procurements from which lessons can be learned applicable to the implementation of a multi-phase source selection process.

3. Current Policy

At the time of this writing, the Office of Federal Procurement Policy and the DoD Acquisition Reform Office have completed an initial evaluation of PBA study team recommendations, including proposed statutory changes to facilitate implementation of the multi-phase source selection strategy. They have issued a call for Services to submit pilot projects to implement report recommendations. The Naval Air Systems Command (NAVAIR) is considering a pilot project in which to utilize and further evaluate this methodology.

B. PURPOSE

This thesis will take an in-depth look at points noted by major system acquisition practitioners in four case studies. The points noted will be contrasted with current source selection practices and policies at NAVAIR. Conclusions will be drawn regarding the implementation of the proposed multi-phased source selection strategy in support of PBA, specifically at NAVAIR.

This study will further advance the implementation of PBA in the DoD, specifically at NAVAIR. This study will also assist the DoD Acquisition Reform Office in evaluating PBA

report recommendations, specifically in evaluating proposed statutory changes with the Congress.

C. RESEARCH QUESTIONS

Primary: What are the essential characteristics of a NAVAIR source selection process that incorporates to the maximum extent possible multi-phase source selection as recommended in the 1999 PBA report?

Secondary:

1. What is a multi-phase source selection strategy, and how does it differ from present source selection strategies?
2. How does the multi-phase source selection strategy recommended in the PBA report of December 1999 differ from multi-phase strategies currently used by NAVAIR?
3. To what extent does use of a multi-phase source selection strategy facilitate PBA?
4. What are the potential benefits and risks of utilizing a multi-phase source selection strategy?
5. What conditions best support the use of a multi-phase source selection strategy?
6. How have other Federal procurements overcome barriers and utilized a multi-phase source selection strategy?
7. What barriers exist that preclude NAVAIR from utilizing a multi-phase source selection strategy?
8. What should the underlying NAVAIR procedure be to fully incorporate multi-phase source selection?
9. What are the pertinent factors for screening potential programs for utilization of a multi-phase source selection strategy at NAVAIR?

D. SCOPE AND METHODOLOGY

1. Scope

The scope of this thesis is limited to extrapolation of observations made in four case studies. Assumptions are that the reader is knowledgeable of Government acquisition terms and procedures. A literature review of source selection methodology will be conducted and presented to provide background on source selection strategies with features similar to those of the proposed multi-phase strategy. A review of recent literature and discussions with program managers and support personnel will be used to select four case studies that highlight innovations achieved in source selection. The scope of the study is focused on potential use of the proposed multi-phase source selection strategy at NAVAIR.

2. Methodology

The methodology used in this thesis research consists of the following steps:

1. Conduct a literature search of books, magazine articles, CD-ROM systems, Internet and other library information resources.
2. Conduct interviews with source selection practitioners and policy makers in relevant Federal programs, at NAVAIR, the Office of Federal Procurement Policy and at the DoD Acquisition Reform Office.
3. Interpret points noted by source selection practitioners in four case studies using multi-phase or similar source selection processes in Federal procurements
4. Apply the interpretation of points noted in the case studies to evaluate the potential for utilization of a multi-phase source selection strategy at NAVAIR, specifically in a major system acquisition.

E. ORGANIZATION OF STUDY

This thesis is organized into five Chapters. Chapter I provided an introduction to the subject of study and an overview of research questions, scope and methodology. Chapter II presents source selection methodologies and their intended objectives. The source selection strategies presented in Chapter II do not represent all possible source selection strategies. The source selection strategies presented represent those with objectives and methods similar in nature to the proposed multi-phase source selection strategy.

Chapter III describes four acquisition program case studies. This Chapter presents an objective look at points noted by program managers and support personnel during the execution of source selection. Expected benefits from use of the strategies employed, as well as barriers, challenges and advantages are highlighted.

Chapter IV presents an overview of source selection policies, practices and procedures at NAVAIR. Organizational efforts to improve source selection at NAVAIR are also presented.

Chapter V presents interpretations of the points noted in the Chapter III case studies. These interpretations are then contrasted with the source selection policies and practices at NAVAIR and with the proposed multi-phase source selection strategy. This contrasting is utilized to draw conclusions regarding the use of the proposed multi-phase source selection methodology at NAVAIR, and in support of PBA.

Two appendices are provided after Chapter V. The first presents factors for screening potential programs for utilization of a multi-phase source selection strategy at NAVAIR. The second provides language to incorporate the multi-phase source selection strategy into NAVAIR source selection guidance.

II. OVERVIEW OF SOURCE SELECTION METHODOLOGY

The purpose of this Chapter is to present background information on acquisition/source selection strategies similar in nature to multi-phase source selection and to introduce the multi-phase source selection strategy. This Chapter provides a backdrop from which to analyze the use of a multi-phase source selection strategy.

Source selection strategy is embedded in acquisition strategy. An acquisition strategy is a big picture outline of how program objectives are to be achieved with the level of resources provided (Ref 4). This high-level strategy includes defining, developing and fielding a weapon system. A source selection methodology achieves one part of an acquisition strategy, to select the appropriate offeror to award a contract. During execution of an acquisition strategy, more than one contract may be awarded. The intertwinement of acquisition strategies and source selection methodologies requires discussion of both to fully understand the context in which a source selection will take place.

A. BACKGROUND

1. Source Selection in General

Source selection includes a solicitation for and evaluation of proposals. A source is selected, a contract is awarded and unsuccessful offerors are debriefed. Source selection is governed by statute and regulation. For Navy procurements this includes the Federal Acquisition Regulation (FAR), Defense FAR Supplement (DFARS), and the Navy Acquisition Procedures Supplement (NAPS) (Ref 11). DoD Directive 5000.1, DoD Regulation 5000.2-R and Comptroller General decisions also influence the process.

Although numerous policies and procedures must be adhered to, an underlying theme is that source selection practitioners are expected to exercise sound business judgment in the application of rules and procedures. Each acquisition stands alone and the source selection

process can be tailored to each acquisition. Legal precedent is that the source selection decision must result from rational rather than arbitrary judgment. (Ref 11)

Objectives of source selection include: (Ref 11)

- Selecting the offeror with the proposal that is in the best interest of the Government.
- Ensuring impartial, equitable, and comprehensive evaluation of proposals and capabilities
- Minimizing process cost to both Government and industry
- Documenting the basis for the selection decision

Traditional source selection is used when factors other than cost or price are considered prior to contract award. A major system development may include more than one contract. Separate contracts may be awarded for development, production, fielding, deployment, operation and support. (Ref 11)

Source selection generally follows this sequence of events: (Ref 11)

Step	Action
1	Source Selection Authority (SSA) designated
2	Evaluation groups established
3	Source Selection Plan (SSP) developed
4	SSP approved
5	RFP developed and issued
6	Proposals received and evaluated
7	If necessary, discussions are held
8	Final proposal revisions received and evaluated
9	Supporting documentation for selection decision prepared
10	Source selected
11	Chain of acquisition authority briefed as applicable

12 Contract(s) awarded

13 Unsuccessful offerors debriefed

14 Lessons learned documented

The next section describes two phase acquisition.

2. Two Phase

Two phase acquisitions start with offerors providing past performance information, a conceptual outline of their technical approach and rough order of magnitude pricing. The Government evaluates this information and advises offerors whether or not they are competitive for further consideration. The idea is to reduce the number of detailed proposals received in the second phase. This reduction in proposals saves both the Government and industry resources. This saving of resources is intended to attract firms that historically did not do business with the Government because of excessive efforts required to prepare proposals that frequently do not result in contract award. (Ref 2)

The second phase includes the development and evaluation of detailed proposals. Only offerors with a solid chance of winning the contract award should complete detailed proposals. However, it frequently occurs that phase two solicitations are issued to all first phase offerors as well as to offerors that did not participate in the first phase. This serves to defeat the purpose of the two phase strategy.

The Office of Federal Procurement Policy Act and the Small Business Act require that all responsible sources have the opportunity to submit offers. Some agencies, like the Federal Aviation Administration (FAA) are exempt from this requirement and have the ability to limit selection of second phase offerors to those that participated in the first phase (Ref 32). Limiting the number of offerors in this manner enables both Government and industry to sharpen their focus. This sharpened focus can result in finding an optimal match between Government requirements and solutions available in the market. (Ref 2)

Risk is mitigated in the two phase strategy by increasing communication between industry and Government. Offerors are more likely commit to a full scale phase two effort to understand the requirement and explore solutions. The risk of loss of proposal development cost is lessened if an offeror knows that it is competing in a limited pool in which it stands a fair chance of receiving the contract award. (Ref 2)

Competition is enhanced with freer communication between prospective offerors and the Government. Requirement and evaluation criteria development is enhanced. The Government receives the most benefit from competition with best value proposals that meet all requirements. It is better to end up evaluating a small number of good proposals than a larger number of proposals, some of which do not meet requirements or do not represent good value. (Ref 2)

Either cost-based or price-based acquisition can be used appropriately with a two phase strategy. Acquisition type, such as design or production, typically determines which is appropriate. Risk exposure may be limited in development work with cost-beneficial ceilings set to indicate when to reevaluate continuing the project. (Ref 2)

The next section describes phased down select acquisition.

3. Phased Down Select

"Down select" generally means to reduce the number of contractors working on a program by eliminating one or more for the next phase.

Performance based requirements are outlined vice using design specifications. Offerors are not limited to one solution or approach. Offerors can be evaluated against this broader statement of requirements. Offeror submissions may progress from limited outlines in early phases to detailed or full proposals in follow on phases. Full proposals may not be solicited from less competitive sources or a cut off date for submission of full proposals may be used. (Ref 7)

Phased competition through down selecting is intended to reduce risk. Risk exposure is limited by the scope of each phase. Risk is limited in less comprehensive contracts to develop the system and the processes to be used.

Leading edge technology solutions requiring significant development fit well with phased competition. The exploration of commercially available solutions may indicate that limited or significant development work is required to satisfy the requirement. Meetings with prospective offerors, pre-solicitation notices and conferences, draft requests for proposals, pre-proposal conferences and performance specifications and statements of work can be used to engage potential offerors in the search for solutions. Risk exposure increases when a previously unused commercial solution or a solely-Government developed solution is used. The industry risk is that of preparing a proposal without winning the contract award. The Government risk is that the solution will not meet requirements or will not be the best solution. Limiting the scope of the development work by using phases can reduce these risks. (Ref 7)

Two phase is considered by some practitioners to be an example of a phased down select.

The next section describes competitive prototyping.

4. Competitive Prototyping

Competitive prototyping consists of the development of prototypes by offerors. Different designs are compared in prototype form. Offerors can complete some of the development of the design in making the prototype. The desired outcome is that the completion of the prototype and the development work are completed together. The Government then can evaluate a proptotype that is ready for full-scale production. (Ref 2)

Prototype development as a part of system development enhances communication between the Government and industry. End-users can see and operate the proposed solution.

Marketplace capabilities can be demonstrated, including innovative or alternate solutions to Government requirements.

Risk is reduced through this increased level of communication. Proving that designs will work as intended prior to committing to large-scale efforts and associated funding also reduces risk. In addition, the Government gains insight into the cost of operational support, and fit within the intended operational environment. Risk may be mitigated to the point that fixed-price contracts are appropriate earlier in system development. (Ref 2)

A prototype can be anywhere on the spectrum from a complete system to a major component to a partially complete model. The level of funding committed by the Government to each developer may differ. Factors to consider when considering funding include how much funding the contractor is providing, the complexity of the design and commercial applicability of the prototype. Commercial applicability of the output increases offeror willingness to invest in the prototype (Ref 2).

Fixed-price contracts for prototypes can fit when a relatively small amount of development takes place as the prototype is built. This limits the development risk. Allocating risk in this manner is most likely to be the result of further development of a commercial or non-developmental item. (Ref 2)

Competition can be maintained in two ways: awarding two or more prototype or combined prototyping and development contracts and upgrading the current system with limited development.

The next section describes evolutionary acquisition.

5. Evolutionary Acquisition

In evolutionary acquisition, a system with a well-defined baseline capability is fielded early on. Enhancements to this baseline capability are fielded until the system is complete. (Ref 3) An overview of this approach is shown in Figure 2-1.

The source selection and acquisition strategies presented so far wrestle with successfully navigating shifting requirements and priorities. Evolutionary acquisition embodies a number of common threads that run through these strategies. The goal is to successfully field a system within a framework of emerging technologies and budgetary pressures.

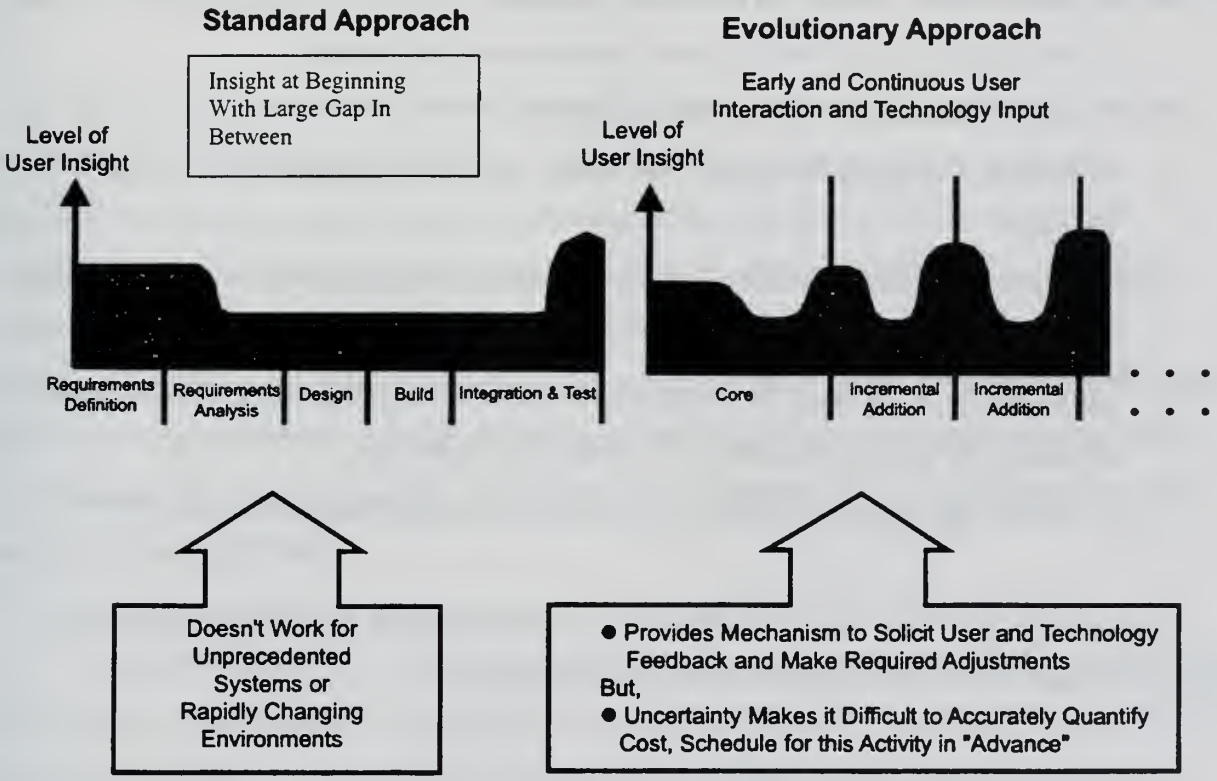
Standard Approach
Insight at Beginning With Large Gap In Between
Level of User Insight
Requirements Definition
Requirements Analysis
Design
Build
Integration & Test
Doesn't Work for Unprecedented Systems or Rapidly Changing Environments
Evolutionary Approach
Early and Continuous User Interaction and Technology Input
Level of User Insight
Core
Incremental Addition
Incremental Addition
• Provides Mechanism to Solicit User and Technology Feedback and Make Required Adjustments
But,
• Uncertainty Makes it Difficult to Accurately Quantify Cost, Schedule for this Activity in "Advance"

Figure 2-1. Evolutionary Acquisition Overview (From Ref 3)

Each increment of capability acquired is treated as an individual acquisition. Defining the boundaries of the increments requires feedback from the end users, developers, testers and maintainers. The insertion of developing technology within the boundaries of the schedule, the requirement and the cost has to be considered as well as the associated risks. Increased communication is required between the participants listed (Ref 3). Heavy involvement is required from Planning, Programming and Budgeting System participants to ensure that funding timelines can support the discontinuous funding profile that emerges when using an evolutionary strategy

Characteristics of evolutionary acquisition are: (Ref 3)

- A general description of the functional capability desired for the full system. The desired capabilities of the full system are not specified in detail
- A concise statement of operational concepts for the full system
- A flexible, well planned overall architecture incorporating a process to include changes
- A plan for incrementally achieving the desired total capability which adheres to life cycle cost effectiveness
- Early definition, funding, development, testing, fielding, supporting and operational evaluation of an initial increment of operational capability
- Continual dialogue and feedback among users, developers, supporters and testers

Successful execution requires identification of and adherence to a system architecture that can accommodate additional performance modifications.

The next section describes modular contracting.

6. Modular Contracting

In modular contracting an acquisition is separated into stand-alone modules. Delivery, implementation, and testing of the entire system is accomplished in increments (Ref 1). Each increment stands alone, and is separately and fully funded. The end product of one module can be built upon in the next module. Modules can be accomplished in series or in parallel. If follow-on modules were not part of the original plan, it may be more beneficial to award them to the incumbent contractor than competing the follow-on module.

As with evolutionary acquisition, a system architecture that is open or can accommodate follow-on modules is required. The greatest risk in modular contracting is integration risk. Integration can be the responsibility of the Government or a contractor, but it must be addressed.

Risk is mitigated in several ways. Acquiring a system via smaller modules allows the Government to make fact-based decisions. Traditional acquisition methods require more reliance on projections and estimates. By breaking down a larger acquisition into smaller modules, increased access to industry and smaller firms is achieved, enhancing competition. Government flexibility is increased through an increased ability to accommodate shifts in technology, and an increased ability to start, stop or change program direction or timelines at the completion of each module. Modular contracting is results-based as opposed to process-based. It can enhance program management stability and risk assessment under conditions of rapidly changing technology. (Ref 1)

Contracted work scope is smaller and more likely to be accomplished within goals set by the contractor when compared to traditional developmental acquisition. Acquisitions can also be terminated with smaller sunk costs if it becomes apparent that threshold goals will not be met.

The risk mitigation avenues available in modular contracting may facilitate fixed-price contracts where not achievable in a large developmental program. In cost-based contracting, modules serve to limit Government financial exposure. (Ref 1)

Although modular contracting is generally referred to in the acquisition of major Information Technology (IT) systems, it can be used in the development of other types of systems.

The next section describes incremental acquisition.

7. Incremental Acquisition

Incremental acquisition divides the work effort into overlapping phases (Ref 8). Phases can be fixed-priced. Because the output of the design phase is needed as an input to build the solicitation for some follow-on increments like production, some fixed-price phases cannot overlap. Figure 2-2 shows incremental acquisition in a development program.

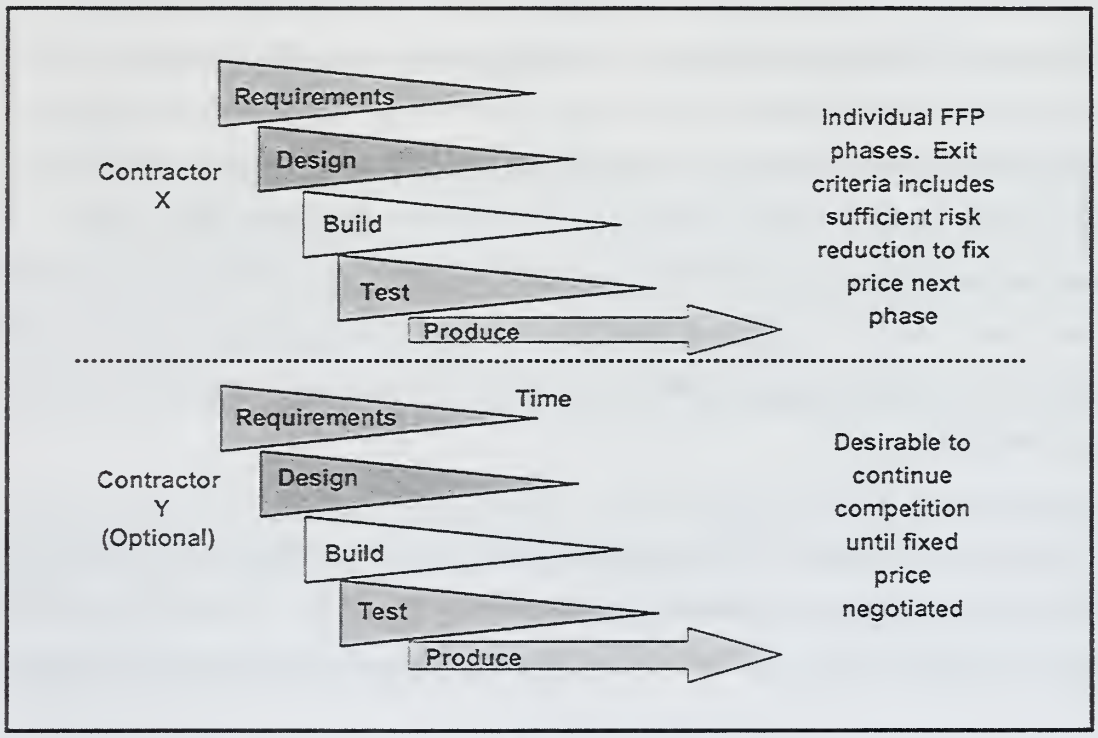

Figure 2-2. Incremental Development Acquisition Strategy (From Ref 8)

Acquisition utilizing an incremental strategy is essentially the same as that described under evolutionary contracting, although there is some disagreement among practitioners about the precise definitions of modular, evolutionary and incremental contracting.

The next section describes Other Transaction Authority.

8. Other Transaction Authority (OTA)

In 1994, Congress passed Public Law 103-160. Section 845 of this law authorized the use of OTA in Federal Acquisitions. OTA is not clearly defined, other than to say what it is not. This points out that OTA does not represent doing business as usual through contracts or grants. It is not subject to the laws, rules and regulations governing traditional defense acquisitions. OTA allows innovative acquisition strategies, tailored beyond that which is possible in the traditional acquisition process (Ref 5). Government acquisitions are frequently tailored to an acquisition process. OTA enables tailoring of the contract process to each project, rather than the reverse.

OTA has successfully been used to: (Ref 5)

- Stimulate access to firms that normally do not do business with the DoD
- Integrate commercial and military processes
- Provide flexibility in the area of patent and data rights and relief from flow-down procurement clauses
- Facilitate an acquisition approach based upon a multi-phase down select of competing contractors (where the initial phase results would serve as the valuation criteria for the award of the follow-on phases)

The Defense Advanced Research Program Agency (DARPA) is a leader in the use of OTA. DARPA used OTA as a way to achieve several objectives. These objectives include reducing timelines for development, reducing costs, and shifting the focus of acquisition

practitioners away from compliance with regulations. OTA allows the use of Generally Accepted Accounting Practices in place of the generally more restrictive Government Cost Accounting Standards. OTA does require adherence to applicable fiscal and socio-economic laws. Regulations such as the Armed Services Procurement Act, Competition in Contracting Act (CICA), FAR and DFARS do not have to be strictly adhered to. (Ref 6)

Combining OTA with common sense and non-rigid interpretation of governing regulations opens the door for innovation in processes by both the Government and industry. (Ref 5)

OTA is intended to: (Ref 6)

- Increase the number of commercial firms participating in Government projects
- Expand opportunities to leverage commercial technologies
- Use broad performance characteristics to identify requirements
- Increase the level of design responsibility assigned to contractor teams
- Use smaller Government program offices

The removal of regulatory constraints that encompass acquisitions permits use of a wide array of source selection and acquisition strategies. For this reason, OTA is considered to be a hybrid, as opposed to a stand-alone acquisition or source selection strategy.

The next section discusses PBA and multi-phase source selection as an element of acquisition reform.

B. PRICE-BASED ACQUISITION AND MULTI-PHASE SOURCE SELECTION

Over the last 20 years, the DoD has initiated numerous acquisition reform initiatives. The FAR part 15 rewrite represents one of these reform initiatives. FAR Part 15 covers the basic rules for negotiated procurements. The most controversial aspect of the FAR Part 15 rewrite has

been the initiative to let agencies narrow the competitive range. What was "when in doubt keep them in" became "when in doubt keep them out." Contracting Officers no longer had to include borderline proposals. Instead, the competitive range should contain only "all of the most highly rated proposals." This standard is subject to two exceptions. First, the Contracting Officer can restrict the competitive range to maintain efficient competition, if the solicitation states this possibility up front. Second, the Contracting Officer can eliminate an offeror from the competitive range during discussions, even if all material aspects of the proposal have not been discussed.

This rewrite authorized the use of advisory down selects. In an advisory down select, the Government can ask for preliminary information and use this information to discourage less competitive offerors. However, even if an offeror is told that it is not a viable competitor, a new proposal can still be submitted.

The rewrite included a section on the exchange of information between an agency and a prospective contractor. The rewritten regulation promotes freer communication between industry and Government. The terms communications, discussions and clarifications were redefined. Clarifications were expanded from corrections of minor or clerical errors to include responding to past performance ratings. Communications occur between a vendor and an agency before the establishment of the competitive range and assist in that process. The rewrite defines discussions as negotiations in the context of a competitive procurement. These can now include talks about contract requirements, such as clauses that are not mandatory. The revised definition of discussions includes the Government telling offerors to expand their proposals beyond the minimum requirements. The Government can also suggest that an offer would be more competitive if it had fewer extras and a lower price. The expansion of these definitions was intended to address the problem of vague and uninformative evaluation criteria.

The rewrite promotes freer communication between industry and Government, especially during the pre-proposal stage. However, the final regulation reflects something of a compromise and two common criticisms are a lack of clarity and that the intended goals are not materializing.

Coming close on the heels of the FAR Part 15 rewrite, Section 912(c) of the Fiscal Year 1998 Defense Authorization Act directed the Secretary of Defense to submit an implementation plan to Congress to streamline acquisition organizations, workforce, and infrastructure. To achieve the DoD vision laid out by the Secretary of Defense in April 1998, groups were chartered to study the initiatives that comprise the vision. The individual initiatives included:

- Research, Development Technology and Engineering (RDT&E) infrastructure
- C3 integration/acquisition
- Product support
- Program Management (PM) life-cycle management
- Training for service contracting
- Continuous learning
- Training for commercial business environment
- Technical workforce requirement and retention
- Future acquisition and technology workforce
- Paperless contracting
- Paperless integrated data environment
- PBA
- Integrated test and evaluation
- Requirements/acquisition

The 912(c) PBA Team was chartered to: Analyze the implementation of PBA in the DoD, identify specific tools and techniques to facilitate greater use of PBA within the Department, and to identify what actions (statutory, regulatory, and policy) will be required to transform the Department's buying practices into ones that are more commercial-like. (Ref 8)

This team defined PBA as a way for DoD to buy goods and services that does not rely primarily on a supplier providing cost data, stating that PBA is a way of doing business that begins with identification of a need and flows through post-award activities. The study group

saw PBA as a way to become more commercial in buying practices and achieve three outcomes: (1) increase access to leading edge technology available in the commercial sector, (2) reduce Government infrastructure and (3) get better prices for what the DoD buys (Ref 8).

Understanding the application of PBA is facilitated through the use of models. In the model shown in Figure 2.3, a price-based approach is associated with a high level of competition, high confidence in the ability to use price analysis to determine a fair and reasonable price, and low technical risk. (Ref 8)

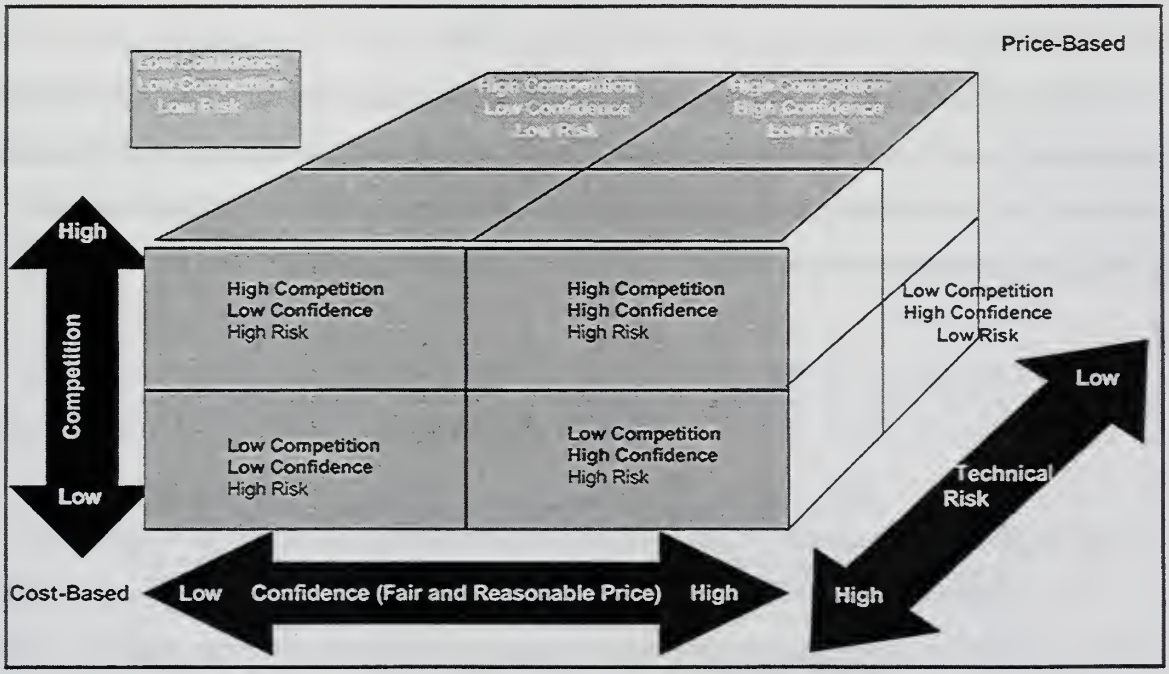

Figure 2.3. CBA to PBA Continuum I (From Ref 8)

A cost-based approach is shown in this model coinciding with low competition, confidence in the ability to use price analysis to determine a fair and reasonable price, and low technical risk.

The two ends of the model are not mutually exclusive. A combination acquisition strategy can be used. The peculiarities of any given acquisition drive the resultant choice of

strategy. The three-dimensional focus of Figure 2.3 leaves out the purpose of the acquisition and equally weights the three factors. It also does not depict pre- and post-award activities. The PBA team referred to pre- and post-award activities as the business case development of an acquisition. (Ref 8)

An alternate depiction of the cost to price-based continuum is shown in Figure 2.4. In this depiction, a series of continuum are presented in three categories: acquisition strategy, enablers and business case development. The authors of this depiction stressed that the three groupings of continuum are not necessarily of equal importance.

In Figure 2.4, acquisition strategy is placed on top to emphasize the planning process. An acquisition for research and development has different inherent risks associated with it than does an acquisition for production. Frequently, consideration for mitigation of this inherent risk drives the decision to use either a cost or a price-based approach. (Ref 8)

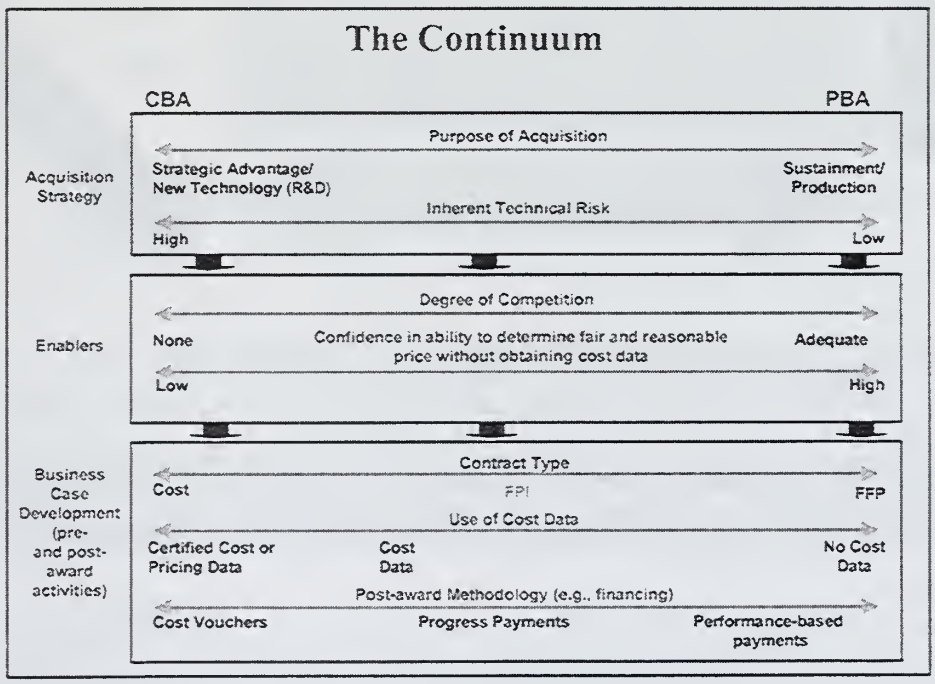

Figure 2.4. CBA to PBA Continuum II (From Ref 8)

The enabler group shares two sub-elements with Figure 2.3, degree of competition and confidence in the ability to obtain a fair and reasonable price without supplier cost data. The point of the enabler subsection is that market conditions should not solely determine whether a price or cost-based approach is more appropriate. As with all of the sub-elements in this model, the degree of competition is not by itself a prerequisite for PBA. Instead, competition facilitates or enables PBA. PBA may be used without competition, as in a sole-source market. (Ref 8)

The bottom grouping in Figure 2.4 is labeled business case development. Addressed within this set of continuum is contract type, use of cost data and post-award methodology. Each sub-element contributes to the level of support given for either cost- or price-based strategies. If the characteristics of all continua shown weigh more heavily to the left of Figure 2.4, then cost-plus contracts with the incentive on cost are most appropriate. If the opposite is true, firm-fixed-price (FFP) and fixed-price with performance incentive contracts are more appropriate. (Ref 8)

Taken as a whole, it is difficult to label an acquisition as either cost or price-based, because many use a combination approach.

The PBA study team recommendations were grouped into five categories: (1) changing the risk equation; (2) establishing the business arrangements; (3) sustaining the PBA environment after award; (4) bringing about change and (5) unique markets. Mitigating risk to the point that fixed-price contracts are acceptable to allocate risk between the Government and industry underpins the use of PBA. Changing the risk equation is paramount in the DoD transition to increasing the use of PBA (Ref 8). As discussed in the section on OTA, the DoD conforms acquisitions to strategy. Commercial firms conform strategies to acquisitions. Broader use of PBA by the DoD will require a similar approach.

One of the recommendations made by this study team was to implement the use of multi-phase source selection. The next section discusses multi-phase source selection as executed

today, prior to the discussion of the multi-phase source selection as proposed by the PBA study team.

C. MULTI-PHASE SOURCE SELECTION AS EXECUTED IN TODAY'S ENVIRONMENT

Source selection and acquisition strategies as executed in today's environment are difficult at best to label. As discussed, regulations and directives have been extensively reworked to promote flexibility, tailoring and streamlining of acquisitions. The large amount of change within Government acquisition combined with this promotion of modifying any particular strategy to best fit the current acquisition has resulted in a wide variety of acquisition strategies. PMs and PCOs administer their programs from within this dynamic framework, drawing from personal and organizational experiences with the strategies discussed earlier in this Chapter.

The phased down select is similar to the proposed multi-phase source selection. It is used here as a jumping off point from which to look at an "as executed today" comparison.

The phased down select process has a number of similar goals with the multi-phase source selection process, but in practice has not been successful. Shared goals include: (1) ensure full and open communications between the Government and contractors; (2) maximize benefits from communications and (3) emphasize up front planning. Enhanced communication is intended to achieve a better understanding of the work required to meet Government requirements and the risks associated with contractor accomplishment of this work. Increased communication can expand opportunities to leverage current capabilities or commercial technology towards satisfying Government requirements. The end result is use of a fixed-price contract. (Ref 8)

The phased down select and multi-phase source selection have two main differences. First, in a phased down select, refinement of the requirement and the entire source selection

process is limited under FAR Part 15. The most significant FAR Part 15 limitation is that performance, schedule and cost trade offs are bounded by the requirement and FAR part 15. Requirement changes have to go out to all offerors without delay. If the change is significant, offerors outside of the competitive range are allowed to submit revised offers. In multi-phase source selection, changes to the requirement do not have to be recompeted. Changes to the requirement may occur as it is being refined. This circumstance could occur during contract execution or in between contracts. Second, no Justification and Approval (J&A) is required for other than full and open competition when going into a follow-on phase considering only offerors who were included in prior phases. This facilitates refinement of the requirement without bringing back offerors excluded in earlier phases.

Multi-phase strategies as executed today are limited by these differences. J&As are utilized to obtain permission to limit competition as the acquisition proceeds from one phase to the next. Requirement refinement may occur due to maturation or emergence of technologies or as a result of the revision of operational doctrine to accommodate new technology. This requirement refinement is oftentimes hampered by inability to overcome constraints associated with sharing solutions and requirement refinements with potential and current offerors. Frequently noted in acquisition literature is that industry is hesitant to participate in Government work because of the likelihood of the source of their competitive advantage, their unique solutions, being disclosed to competitors through this sequence of events.

The next section describes multi-phase source selection as proposed by the PBA study team.

D. MULTI-PHASE SOURCE SELECTION AS PROPOSED

One recommendation made by the 912(c) PBA study group under the category of changing the risk equation, is a source selection strategy labeled multi-phase. Per the PBA study group, the multi-phase source selection strategy should be considered whenever the requirement is fluid and is likely to change significantly after information has been exchanged with potential

sources and there are two or more sources expected to be capable of meeting Government requirements. (Ref 8)

Similar to several of the acquisition strategies discussed in Chapter II, the proposed multi-phase source selection strategy emphasizes up front planning and increased communication between industry and the Government. The proposed multi-phase source selection strategy is intended to provide clear understanding to both industry and Government how much of the requirement can realistically be met with existing technology and how much requires development. Discussions between industry and Government are limited to sources with high past performance ratings and demonstrated performance capabilities. There is no desire or intention to share the same information with all offerors. Discussions can be unique to each offeror. Fairness with offerors does not automatically equate to sharing the contents of each unique discussion held with individual offerors. (Ref 8)

In multi-phase source selection, Government requirements are initially stated as objectives. Offerors provide capability statements for evaluation. Capability statements may include summary information about: (Ref 8)

- Past performance of the contractor for similar work
- Ability to perform the required work
- Conceptual approach to performing the work
- Rough order of magnitude price estimate for the conceptual approach

After selecting an initial subset of offerors, the Government works individually with each to refine requirements. Program risk reduction and leveraging commercial technology are immediate goals. Cost, timeline and capability trade offs are considered with each proposed solution (Ref 8). The first two phases are generally proposal development and requirements development. A number of phases may be used. The desired end-state is adequate understanding of requirements by both the Government and industry to propose and accept fixed-price contracts. Sources may be eliminated from the competition in any phase. Criteria to

compete in a follow-on phase may include participation in the prior phase. One or more contracts may be awarded for each phase. Proposed statutory language negates the need for a J&A by allowing consideration of limited sources without bringing back in all potential offerors. (Ref 8)

The Government may fund all or a part of the earliest phases. Commercial applicability increases the likelihood that contractors will invest in the development process. Different funding levels may be provided to each contractor.

Refinement of Government requirements is expected to take place during execution and evaluation of the phases. The Government states in the solicitation that it has the right to negotiate the alteration of requirements or terms and conditions without changing the solicitation. (Ref 8)

Government teams can be formed to work with each industry team. A cost benefit analysis should be conducted prior to forming contractor specific Government teams. Separate teams may preclude the possibility of technical transfusion or leveling. Separate teams may not be achievable due to lack of personnel to adequately staff them.

This source selection strategy is proposed as a means to facilitate using PBA. The next section discusses the relationship between PBA and multi-phase source selection.

E. RELATIONSHIP BETWEEN PRICE-BASED ACQUISITION AND MULTI-PHASE SOURCE SELECTION

Design and production competition exist in a development acquisition. Design competition occurs in the early phases of development. Production competition occurs after the design is stable. Reducing risk during design competition has historically been addressed by choosing one design solution out of several that have not shared data. (Ref 9)

Maintaining design competition carries with it cost. Choosing one design and eliminating this form of competition can save money. (Ref 9)

Production competition is typically longer than Design competition. Production competition can be maintained through production, fielding and disposal. Production competition sometimes ends when one competitor takes over another. Production competition centers on a stable design and can facilitate benchmarking between competitors and thus serve to preserve skills in the industrial base. (Ref 9)

Encouraging and sustaining production competition for complex systems is not an easy undertaking. In some cases it is unachievable and not in the best interest of the Government. Alternatives to sustaining production competition include: (Ref 9)

- Subcontract competition
- Component/subsystem breakout
- Use of the industrial modernization incentive program
- Aggressive value engineering program
- Use of incentive or award fee contracts
- Should cost analysis of the sole source prime
- Product improvement of existing item
- Use of "off the shelf" commercial or non-developmental items

The multi-phase source selection strategy is intended to address the inherent risks of both design and production competition, and in this manner facilitates PBA.

The USD (AT&L) embraces PBA, yet recognizes that it is a controversial subject. Therefore, the USD (AT&L) is looking for DoD agencies to propose pilot programs to test the recommendations made by the PBA study team, including the multi-phase source selection strategy. Progress made in the development and use of other PBA tools such as waivers of

certified cost and pricing data are highlighting the benefit of using PBA. Use of multi-phase source selection may continue and accelerate this progress.

PBA is one approach out of many available to a contracting officer. It should be considered for use when the situation warrants as opposed to using PBA in all situations. Properly balancing timelines, cost, requirements and risk requires flexibility. Flexibility is increased with inclusion of additional methods to facilitate PBA. (Ref 10) Multi-phase source selection provides another method to facilitate PBA and increase access to commercial technology.

Multi-phase source selection goes beyond what can be done under existing regulatory and statutory restraints. Government to industry and industry to Government information flow is enhanced by multi-phase source selection. This increased communication may ensure that both Government and contractors have a clear and unambiguous understanding of the requirement, industry capability, and specific solutions. It allows industry to be more innovative in meeting requirements. It allows industry to help the Government tailor requirements. This tailoring can overcome the systemic problem of the Government buying into optimistic promises from industry. It provides a means to let competitors be unequal without requiring equal sharing of information. This protects intellectual information. While this approach could be used in a cost-based environment, it is intended to reduce risk to the point where fixed-price contracts are an acceptable risk allocation tool, and in this manner facilitates PBA. (Ref 8)

F. CHAPTER SUMMARY

This Chapter provided a backdrop of current and historical perspective on the smorgasbord of acquisition and source selection strategies confronting PMs and PCOs as they formulate a source selection methodology. This Chapter provided an overview of the current environment in which system acquisition programs are immersed prior to discussing several programs in more detail.

The next Chapter will summarize four active acquisition programs. These summaries will be used to draw conclusions about the use of multi-phase source selection.

III. SOURCE SELECTION IN SELECTED FEDERAL PROGRAMS

A. INTRODUCTION

Four case studies in brief are presented in this Chapter. The cases were chosen after a review of recent literature and discussions with program managers and support personnel. Programs utilizing source selection methodology that included, or attempted to include phasing were sought. Programs chosen are intended to highlight innovations achieved in source selection, as well as highlighting barriers, advantages, challenges and disadvantages of each approach.

The emphasis in the case studies is not on the history of each program. Background is presented to give the reader an overview only. The important features of the case studies are the points noted by source selection practitioners during the execution of their programs. The case studies as presented in this Chapter are intended to provide an objective overview of each case. Further analysis of points noted in the cases will be presented in Chapter V.

B. USCG DEEPWATER PROJECT

The U.S. Coast Guard labels operations taking place greater than 50 miles from land the Deepwater mission. Deepwater missions generally consist of lengthy at sea operations in all weather environments. Missions can be humanitarian, law-enforcement, diplomatic or military (Ref 12). Deepwater assets currently are a group of aging legacy systems, at or past the end of their expected service life. These assets were acquired piece-meal over time, and are not well integrated, either internal to the Coast Guard, or externally to other Services and Government agencies.

The Deepwater Project was initiated in 1998. Its purpose is to ensure the timely acquisition of the appropriate resources that utilize available technology to satisfy Deepwater mission needs. This purpose is intended to enable the Coast Guard to upgrade, modernize and

replace ships, aircraft and command and control infrastructure. This project includes re-capitalization of all Deepwater assets. The objective is to develop an integrated system of systems. This system of systems includes surface, air, command and control, communications and shore-based infrastructure assets. Emphasis is placed on maximizing operational effectiveness with lowered total ownership costs over the life span of acquired assets. (Ref 12)

1. Intended Strategy

The Deepwater acquisition strategy can be summarized as acquiring an integrated system of systems, focused on capabilities vice assets, with requirements and solutions defined collaboratively by both industry and the Coast Guard (Ref 13).

This acquisition strategy is loosely patterned after DoD models of working with competing industry teams towards down selection to a substantial contract award. This acquisition consists of two phases. Phase I contracts were for conceptual and functional design. Phase II contracts are to build and provide the integrated Deepwater solution.

Phase I award decisions were based on an evaluation of the following factors: technical/management and cost/price, with technical/management being significantly more important than cost/price. An oral presentation was used where offerors addressed project management and technical expertise. Written information evaluated included PPI, software capability maturity model assessments, organizational descriptions, integrated master plans, integrated master schedules, copies of oral presentation slides, and cost/price information. (Ref 17) The phase I contracts are fixed-price.

The phase II contracting strategy is to award a single contract to a systems integrator. The systems integrator provides the system of systems implementation plan. The systems integrator is responsible for providing a complete system in compliance with the system performance specification. Phase II contract type is intended to be a long-term Indefinite Delivery Indefinite Quantity (IDIQ) contract with fixed-price and cost type delivery orders.

Delivery orders may be structured as a multi-year contract or as a base period with options. Performance incentives are to be incorporated into the DOs. (Ref 16)

Phase II award decisions will be based on an evaluation of four factors. In descending order of importance they are operational effectiveness, technical, management and cost/price. Operational effectiveness includes assessments of effectiveness when implemented, during implementation and five and ten year years after implementation. Operational effectiveness includes a measure of flexibility of the integrated design system to changes in demand. The technical factor includes system performance specification compliance and functional design feasibility risk assessments. Management process includes four risk assessments; production plan feasibility, management including organization and controls, integrated design systems integration and total ownership cost management. The cost/price factor includes total operations and maintenance cost over the life cycle of the solution and the timeliness of demonstrated savings, along with completeness and reasonableness of cost estimates. (Ref 17)

This approach is a radical departure from past acquisitions by the Coast Guard. Industry is starting from scratch, working from broadly stated performance requirements. This provides significant leeway in which to determine the best mix of assets to fulfill the requirement. (Ref 15)

2. Barriers to Use of Intended Strategy

Uncertain funding is a barrier. This contract represents the Government buying a line of ships and aircraft over a prolonged period. To assist in development of proposals, offerors were provided with projected budget allocations extending 40 years into the future (the expected life cycle of Deepwater). There is difficulty in giving assurance to contractors that future plans will be executed. This inability to give assurance to offerors is exacerbated by the extended length of solution implementation. The intended duration of solution implementation extends beyond the authority that the Coast Guard has to commit funding.

Limiting competition when executing multiple award phases is another barrier. After the first phase, the Coast Guard deemed it necessary to limit offerors to those who had participated in the earlier phase. This required a J&A for other than full and open competition. This barrier was anticipated by the program office and relevant oversight bodies. Approval was given to limit competition based on unique and proprietary systems, the large investment by Government and industry teams in the prior phase and the fact that in phase I the Government stated that competition would be limited at this point.

Ability to execute the strategy within agency regulatory guidelines is also a barrier. The Coast Guard Systems Acquisition Manual (SAM) outlines a process for major systems acquisitions based on individual asset replacement (Ref 15). Because of this, the system of systems approach used in Deepwater does not mesh with some of the document requirements and formats prescribed. The Deepwater approach and the high level of management oversight and attention that it receives more than meets the intent of SAM procedures. A waiver to SAM requirements for phase I was obtained to not do administrative contract management items like the risk management plan exactly as laid out. The Deepwater project is able to meet SAM intent without being restricted by SAM dictated timelines and formats.

3. Expected Benefits from Use of Intended Strategy

The main benefit sought is empowered industry. This empowerment is intended to use field-tested technologies and improved or new processes toward the end of maximizing operational effectiveness with a reduction in total ownership cost (Ref 14).

The multiple-phase down select approach is intended to motivate cost sharing in system development. Contractors were expected to invest in the design phase, above and beyond the amount contracted. The competition during early design and development serves to encourage innovation and fair pricing. Collaborative teaming between industry and Government serves to reduce overall project risk.

4. Execution of Strategy

Phase I, conceptual design, competed a high-level systems performance requirement. Phase I source selection for conceptual design resulted in the award of fixed-price contracts to three industry teams out of four offerors.

Phase I consists of two parts, conceptual design and functional design. In conceptual design the contractors developed proposed concepts to about the 50 percent mark. Three out of four competitors were awarded phase I contracts in August 1998. The prime contractors were Lockheed Martin, Avon-Dale Industries, Inc., and Science Applications International Corporation (SAIC). In the functional design phase the industry teams refined their concepts to about the 80 percent mark. Initially, the concept design phase comprised the entirety of phase I. As concept design progressed, Government and contractors realized that an additional level of detail was needed to proceed further. A modification to further develop the functional design was made to phase I contracts, adding 18 months and $13 million to the phase I contracts.

The start of phase II represents a competitive decision point. The Coast Guard intends to award one contract for detailed design and construction in January 2002. Functional design ends in April 2001. The phase II RFP is on schedule to be published following completion of functional design. This provides industry with proposal preparation time. Proposal evaluation is scheduled to occur between July 2001 and January 2002. Proposals will be evaluated based on how well they maximize operational effectiveness while minimizing total ownership cost.

5. Challenges and Advantages of Strategy

The prime contractor is a systems integrator. The Government does not have privity of contract with the firms actually performing the manufacturing and design work. Difficulties can arise out of this arrangement. Difficulties frequently cited using this type of arrangement include restricted flexibility and increased time to incorporate changes and inability of the Government to monitor and benefit from reduced costs generated at the subcontractor level. In the case of

Deepwater, privity of contract during the multiple phases of system development is a challenge in that flexibility of design is desired, as well as development of an optimal solution. Working with industry teams through a systems integrator lengthens communication lines along with hindering the free flow and active interchange of ideas and potential solutions.

Addressing configuration management and logistics support up front and early in system development is necessary to fully evaluate the total life cycle cost of the system. The ability to accurately assess this component of system cost is made difficult by the nature of the system development. Configuration management and logistics support costs are difficult to quantify with a known system design. In the Deepwater acquisition strategy, these costs will be estimated and included in the evaluation of proposals before the system design has been fully developed.

The Coast Guard does not hand off contract administration to another agency. In the DoD, the Defense Contract Management Agency (DCMA) normally takes over contract administration duties of major systems acquisitions after contract award. With no hand off taking place, the program office has to build infrastructure to administer the contract. The Deepwater project represents a long-term proposition. This potentially drives the program office to select contract types that are less of a burden to administer, as opposed to selecting contract types based on suitability to obtain best value for the Government.

The dollar value of the conceptual design contract was such that the contractor would have to invest in the development. Both Government and industry recognized this. (Ref 17) An outside observer would tend to expect the dollar value of the contract to cover the cost of the work specified in the contract. This scenario is not unique to the Deepwater project, however it does represent a challenge to the program.

An advantage achieved is that industry has been empowered by this source selection strategy. Solutions proposed have been outside the expected norms of systems developed utilizing traditional acquisition strategies (Ref 18). An increasingly common way to refer to the goal of industry combining new commercial and military technologies in a unique solution is to

label it as leveraging commercial practices and technologies (Ref 6, 25). In the case of Deepwater, this advantage appears to have been achieved.

C. ARSENAL SHIP

In the early 1990s, the Navy experienced a growing concern for integrating support of littoral warfare in its weapon systems. Conceptually, a missile barge was envisioned to support theater air defense and land battles in the littoral region. The requirement was loosely articulated as a need to launch a significant amount of precision-guided munitions ashore. (Ref 6)

The Arsenal Ship was a different operational concept. The organizational structure and business processes were a departure from the norm in military shipbuilding. This program was run by DARPA. After the High Altitude Unmanned Aerial Vehicle Program, Arsenal Ship was the second time DARPA utilized 10 U.S.C.2371, as supplemented by Section 845 of Public Law 103-160, OTA in an acquisition (Ref 2). OTA was used to gain flexibility in negotiating terms and conditions appropriate for the acquisition.

At the start of the program three goals were stated: first, to affordably demonstrate capability; second, to leverage commercial practices and technologies; and third, to demonstrate the reformed acquisition process. (Ref 6)

1. Intended Strategy

The Arsenal Ship program had six phases. Phase I was six months long. During phase I, cost-performance studies to support a preliminary concept for design were performed. Phase II was 12 months long. During phase II, proposed concepts would be developed into a functional design. Phase III was 33 months long. During phase III, detailed design and construction of a demonstrator was to be accomplished. Phase IV was a one year long. In Phase IV, test and evaluation would be performed to demonstrate military utility, ship capabilities and concept of operations. Phase V would be options for production of five ships and conversion of the

demonstrator to the production configuration. Phase VI would be a flexible option for service life-cycle support tasks for the proposed fleet of six Arsenal Ships. (Ref 6)

Flexibility gained through the use of OTA was to allow the program to encompass the approach of having the contractors demonstrate operational vice engineering performance. The contractors would be responsible for design, as opposed to the Government shouldering this responsibility. The Government did not specify detailed requirements or specifications. The goal of this methodology was to increase solution space and accommodate new or unique conceptual designs. (Ref 6)

The strategy employed used these principles: (Ref 6)

- Use of relatively few broad performance goals to describe desired system capabilities
- Giving full design responsibility to the competing contractor teams, and facilitating this via excluding Government-Furnished-Equipment (GFE) from the program
- Use of a small joint program office
- Designating affordability as the only requirement, and putting an emphasis on a small crew size
- Structuring a streamlined program and processes using OTA

Source selection was different in each phase. The phase I solicitation outlined the Government's vision of the entire program. Schedule and funding profiles were provided for phases I through IV in the solicitation. Offerors were asked to propose unique approaches intended to best meet Government desired capability. In their proposal, offerors had to include an agreement that would serve as the contractual vehicle for developing their approach. This element of the acquisition strategy differed sharply from the traditional shipbuilding method of the Government specifying a contract to be negotiated. (Ref 6)

Phase I awards were based on five elements: (Ref 6)

- Demonstrated understanding of capabilities document, concept of operations and program description including processes required to execute the program
- Demonstrated capability, experience and resources
- Integrated master schedule depiction of a realistic, time phased plan to achieve phase I efforts
- Addressed or demonstrated intent to use innovative business and technical concepts leading to reductions in cost and schedule throughout the program
- Fit between amount of effort proposed in the task description for phase I and proposed costs for phase I

Offerors had to submit data for phase II four months after phase I began. This data submission consisted of formal design concepts and oral presentations. Since phase I was only six months long, there was no opportunity for contractors to use the full output of phase I in developing phase II proposals. A formal question and answer period was not provided for and Best and Final Offers (BAFO) were not taken. (Ref 6)

Multidisciplinary evaluation teams augmented with Government experts from the acquisition community were used to evaluate offers. Cost experts were on the technical evaluation teams and technical experts were on the cost evaluation teams.

The phase II down select was predicated on choosing the best value contractor. Down select criteria included how well the team described a credible development program, how well the concept demonstrated mission capability while minimizing life cycle costs and demonstration of the ability to execute phases II-IV within the amounts specified in the funding profile. Proposals were judged in whole, with evaluation criteria that was not ranked or weighted. (Ref 6)

Contractors developed functional designs for the majority of phase II. The Arsenal Ship program was cancelled two weeks before phase III proposals were due. This cancellation

occurred as a result of a number of converging circumstances. These circumstances included overlapping development of future surface combatants in other programs, higher-level concerns about funding, and shifting priorities bounded by funding constraints within the Department of the Navy.

The phase III down selection was initiated with two draft solicitations. The program office met individually with each contractor team as part of refining the draft solicitation. Normally not allowed under the FAR, the individual meetings and discussions with contractor teams addressed proprietary design issues. The lack of an appropriate forum in which to address proprietary design issues under traditional acquisition processes generally results in this type of issue being left off the table. (Ref 6)

Phase III would use a cost-reimbursable agreement and incentive fee structure. Cost control and milestones would be negotiated. The selected contractor's agreement would be amended to include phase III requirements. Offerors were responsible for setting up milestones and payments in their proposed agreement amendments. Negotiating incentive structure details before the down select maintained competition between offerors.

2. Barriers to Use of Intended Strategy

Phase III was underfunded (Ref 6). Prior to the start of the program, analysis was conducted to estimate costs and other resources needed for the program. This analysis did not provide a complete enough understanding on which to base sound estimates. The magnitude of the development work was not adequately understood at the start of the program. This resulted in underestimating the amount of work actually required to develop the system. Contractors were willing to invest in the first two phases only. During phase II, further understanding of tasks required to develop the system resulted in an expansion of development tasks required. The contractors concluded that Congress would not provide additional funding for the program beyond that which was initially provided for in phase III. Since the estimates for phase III were now understood to be low, trade space between cost and performance shrank. Capabilities and

performance enhancing components were eliminated from the demonstrators to cut costs. The end result of this sequence of events would be demonstrators that did not fully portray the potential of the weapon system and the possibility of losing external support for the program.

The Arsenal Ship program method of doing business outside of the traditional acquisition process created difficulties when interfacing with other Navy activities. DARPA managed the first two program phases, as opposed to the Navy managing them. Naval Surface Warfare Center (NSWC) labs and Navy Participating Managers (PARMs) were reluctant to provide information and equipment access to contractor teams, a practice they were not accustomed to. Lack of command authority in DARPA over these activities exacerbated this difficulty. (Ref 6)

Steadfast adherence to the plan as envisioned at its inception limited flexibility during execution (Ref 6). During phase I, the possibility of moving the program from DARPA to Navy management arose. Contractors pictured a shift to more traditional acquisition methods and stated that they would not be able to provide the demonstrators under this approach. The program office maintained the original plan and funding profile. The program was merged with a more defined class of ships, the SC-21, which was being developed. Now the Arsenal Ship would be a demonstrator only, with no production. Delivery dates were extended beyond the point of acceptability to the contractors. At the close of phase II, the contractors were required to submit an irrevocable Unit Sail-away Price (USP). As the development work was expanded, the contractors saw the establishment of an irrevocable USP as limiting. In phase II, the contractors allocated costs to the USP based on how well each functional area could justify its estimate. The best understood (and therefore the lowest risk) areas received the funds they requested. The least understood (and therefore the highest risk) areas received the funds left over (Ref 6). This method, intended to address CAIV, improperly allocated the cost goal and diminished system performance after tradeoffs were made.

All contractors did submit an irrevocable USP. Some of the contractors speculated that this USP would not be irrevocable per se. These contractors felt that submitting an irrevocable USP without completing detailed design was impractical. As the development work had

changed or expanded in the first two phases, these contractors foresaw further design changes occurring in the next two phases. These design changes had the potential to undermine the applicability of the irrevocable USP. By submitting an irrevocable USP before completing detailed design, production price would be set without a detailed design. Investment in the project made by contractors in phase III could not be earned back in production.

During phase II, one contractor noted that certain requirements resulted in fixed-price development, an undesirable outcome. Fixed phase III funding combined with an irrevocable offer for phase V and a technical matrix attached to the phase III solicitation led to this claim. Technical information for all design elements had to be indexed per the matrix. Detailed accounting was required for the complete system. This linkage between the solicitation, technical information and detailed accounting was in essence a design specification. All contractor teams added change clauses to their proposed phase III agreement modifications to make the irrevocable offer non-binding. The program office maintained that this combination of program requirements was not fixed-price R&D as long as contractors could make trades in performance within the cost constraints. Not holding the contractor selected to the system specified in the technical matrix would preclude fixed-price development.

Prior to the start of phase II, phases I and II were noted as being of insufficient length by the Government. Phase I was originally scheduled for six months and phase II was originally scheduled for 12 months. At this juncture, the program office would have preferred nine and 18 months for phases I and II respectively. Contractors were required to submit written phase II proposals four months after phase I contracts were awarded. In the space of four months the contractors had to do mission analysis, derive performance requirements, develop major design options and reasonably understand USP. Because of the time limitation, these processes were done in parallel. The output was not completed with sufficient detail and consistency. This stage of a development program drives the majority of cost over the life of the program. More effort devoted at this juncture would get the most return on dollars spent overall. Contractors in this phase were comfortable with the schedule, even though parallel completion of tasks was

required. An example of parallel tasking was the advance funding of subsequent phases to obtain supplier bids. (Ref 6)

The procurement regulations of a traditional acquisition program were seen as a significant barrier to streamlining the Arsenal Ship acquisition. Hand-in-hand with procurement regulations is the barrier of the mindset of the participants in the process (Ref 21). As an example, in a traditional military shipbuilding acquisition, the Navy takes its contract design and develops an RFP. The RFP includes detailed design and construction of the lead ship, and possibly options for follow-on ships. The RFP is usually comprised of a group of written volumes hundreds or thousands of pages long. Contractors invest millions of dollars and several months preparing proposals. A question and answer period follows the receipt of proposals by the Government. A revised RFP may be issued, after which the cycle is repeated. A final proposal revision is eventually requested from the offerors, and the Government awards a contract. This process has taken anywhere from six months to two years to complete. (Ref 21)

3. Expected Benefits from Use of Intended Strategy

Additional insight provided to contractors was an expected benefit. Detailed debriefs to successful offerors conducted over multiple phases would provide industry teams full insight into what the Government saw as their strengths and weaknesses. This feedback would reduce program risk by improving contractor effort in subsequent phases. (Ref 21)

Shortened source selection schedule was an expected benefit. Continuous interaction with industry teams during each phase would shorten the source selection schedule. The tight schedule was a significant challenge. A tremendous amount of information had to be processed with detailed analysis required in short order. Ongoing discussions with contractors about technical, cost and management approaches in the early phases would result in frequent reassessment of risk.

Streamlined process was an expected benefit. The use of OTA would eliminate most of the procurement regulations. This allowed streamlining of the process and shortening of the schedule, especially the source selection process.

Protest avoidance was an expected benefit. OTA was utilized as a means to remove "protest avoidance" from the process (Ref 21). The program office diligently pursued maintenance of the integrity of offeror designs and business data. With OTA, the requirement to provide answers to one offeror's questions to all offerors would not exist. This improved the ability of the Government to support and communicate with individual industry teams.

Using OTA to change the mindset of the participants was an expected benefit. The traditional acquisition process reinforces risk-averse business practices, and can inhibit innovation. Using OTA allows the removal of the traditional acquisition process in its entirety. Regulations and business practices can then be examined individually and reinserted on a case-by-case basis, adjusted to the acquisition. Examples applicable to the Arsenal Ship program are regulations governing security and explosive safety. (Ref 21)

Increased design innovation was an expected benefit. Allowing industry to set requirements would increase design innovation. Industry had free use of the available trade space for design and subsystem selection. This facilitated the use of new technologies and innovative integration of technologies.

4. Execution of Strategy

The Arsenal Ship program started 18 March 1996. Six industry teams competed for phase I work. In July 1996, five of the six industry teams were awarded $1 million agreements for phase I.

In January 1997, three of the five industry teams were awarded $15 million agreements for phase II. The plan had been to down select to two industry teams for phase II. The third

industry team was retained in the competition as a means to include unique expertise and technologies they brought to the table. The additional $15 million R&D investment to maintain the third competitor in phase II was not insignificant to the program office, but was not seen as a significant issue when contrasted with the planned production schedule or the DoD R&D budget.

Phases I and II were completed as originally scheduled. The program was cancelled 20 months after it started.

5. Challenges and Advantages of Strategy

The contractors were expected to (and did) buy in to the first two phases. Each of the five phase I contractors invested about $5 million for a total of $25 million. Each of the three phase II contractors invested approximately the same amount the Government did ($15 million) for a total of $45 million (Ref 6).

Stated earlier as a barrier to use was the issue of insufficient funding. The factors underlying the insufficient funding caused a constraint to trade space. This constraint of trade space represented a significant challenge in this program.

Interaction between the elements of a strategy can be unpredictable and complicated. This interaction can be supportive or a source of unhealthy conflict. In the case of the Arsenal Ship program, the small program office, OTA and minimal system specification worked together to add flexibility to the program. The notion that an innovative strategy should be implemented as a package (Ref 6) represents both a challenge and an advantage in this case.

As competition is eliminated through down selects, the relationship between the contractor and the Government changes. With no competitors immediately present, a sole contractor is not directly compelled to put forth effort to remain amenable with the Government (Ref 6). Barriers to entry of competitors is significantly raised at this juncture and the remaining

contractor has the potential to "tell it like it is" as opposed to worrying more about painting a more optimistic picture than competitors.

Four advantages were achieved with the strategies utilized in the Arsenal Ship program:

- Leveraging of commercial practices and technologies
- Minimized size of program office
- Improved contractor efforts as a result of continuous interaction and debriefs from the program office
- Shortened source selection process

D. MARINE CORPS AVIATION SYSTEM MASTER PLAN (MCASMP)

The MCASMP program was established to procure aviation simulators. These simulators are for Marine Corps Aviation Assets such as the KC-130, AV-8B, EA-6B, AH-1W, ATC, UH-1N, CH-46, CH-53, and F/A-18. The end user is the Naval Air Warfare Center Training Systems Division (NAWCTSD). Approximately ten of the simulators are considered to be original pattern devices, or the first unit for that device type. The simulators are to be self contained and readily deployable in standard containers.

The objective of the MCASMP is to develop capability in simulation, for post Fleet Readiness Squadron (FRS) training. The simulators will be used to immerse experienced pilots in a realistic flight environment with all its visual and mental stressors. The simulators are to provide realistic simulation of actual conditions with the exception of motion and vibration, and will link with training devices for other platforms during coordinated exercises. All simulators will be interoperable within their respective networked environments so missions can be combined as they would be in a combat operation.

Integrated Logistics Support (ILS) to operate and maintain life cycle support for the simulators is included in the procurement. ILS includes a number of items. Included are spare

parts, tools and test equipment, technical documentation, configuration and inventory management, an embedded self-paced instructor-training program, and one year of Contractor Field Services for each type device. The Contractor Field Services are to solve software problems, assist in making difficult repairs, and provide operation, maintenance and support training. Contractors are encouraged to pursue life cycle support initiatives in all areas that will result in greater operational efficiencies and reduce life cycle cost. The life cycle for devices is estimated to be fifteen years.

Minimization of Total Ownership Cost is also stated as a primary goal. Contract award was originally scheduled for February 2000

1. Intended Strategy

The program office was initially faced with developing a system with funds committed and no well-defined user requirements. Headquarters Marine Corps was content to turn the development effort over to Government laboratories (Ref 20). This was not considered an option by the program office due to OMB Circular A-76 outsourcing requirements. The program office saw a conflict between the three potential stakeholders in systems development. The Government labs were accustomed to doing spiral development in a time and materials type of environment. Government procurement agencies were accustomed to level of effort developmental efforts with their role being one of an inspector of completed products. Industry was poised to execute an exact solution as proposed by the Government.

The program office desired to mutually evolve the user's requirements in a dedicated analysis and definition phase. Participants included the users, industry and the program office. Their desire was to solve the problem of having the winning industry offeror's proposal "become gospel" before user requirements were fully understood (Ref 19). The program office saw this as requiring several phases, the first of which was a training systems analysis and definition phase. Exit criteria for this phase would be development of three items: a sponsor user agreement; a cost and schedule baseline and a system performance specification.

The sponsor user agreement was to fully define and understand the requirement. The cost and schedule baselines were intended to baseline existing processes and perform a gap analysis to define the differences between existing processes and those needed to successfully execute system development and implementation. The optimal outcome of this gap analysis would be a melding of the best of Government and industry practices into a set of common processes. The system performance specification was a statement of work developed from the initial statement of objectives provided by the Government.

The program office saw the training system analysis and design phase as a means to expand the design space in their program. System cost and performance tradeoffs needed to be accommodated early on, but downstream knowledge had to be brought back to earlier phases of design to make knowledgeable system level tradeoffs.

The methodology chosen was to use an IDIQ contract with award to a single contractor for an initial delivery order encompassing the training systems analysis and definition phase. This delivery order is to be followed by delivery orders to build, test and field initial pattern units and eventually production units.

2. Barriers to Use of Intended Strategy

Use of PPI as a true discriminator in source selection was a barrier to use. PPI was provided by each offeror, as well as by Government sources. The PPI could be interpreted as positive or equally negative for all contractors. This equality or ambiguity in interpretation rendered the use of PPI as a decision tool nearly useless. (Ref 19, 20)

Money at risk limited the ability to re-compete contracts after delivery of the sponsor user agreement. The MCASMP program was initiated by funding being committed to the program (Ref 20). This placed a severe constraint on the program manager to commit funds before they expired. Development of the requirement, referred to here as the sponsor user agreement, took a finite period of time to develop to the point of being able to progress forward with systems

development. The nature of the requirement required evolution of the requirement during its definition.

Use of open systems architecture in a software intensive program was a barrier to use. Particularly in image databases, achieving a non-proprietary solution is unachievable (Ref 20). This limitation caused considerable conflict between achieving program goals of open systems throughout with contractor desires to maintain control over licensing, rights and other firms access to their primary means of maintaining competitive advantage in the marketplace.

Resolving source of labor funding in a joint contractor/Government IPT environment was a barrier to use. Two budgets existed in the IPT, Government labor and contractor labor. This is a Government institutionalized way of doing business (Ref 20). The program office considered turning Government funding sources over to the contractor, and treating Government employees like another subcontractor. This didn't work out due to an inherent conflict of interest. The conflict of interest resulted from a CPIF contract where the person evaluating the incentive (the Government employee) also was getting paid on it. This is the same as saying to industry, "we are paying for this Government labor no matter how much you use. You are in a CPIF contract incentivized to reduce cost. How much Government labor do you need?" The rational contractor answer is "as much as you can provide (Ref 20)." The method used to overcome this difficulty is to use an Earned Value Management System (EVMS) to map Government monies to the Statement of Work (SOW) and Work Breakdown Structure (WBS).

Ongoing requirement and solution refinement during execution of contracts hampered Government ability to compete contracts. Using an IDIQ contract where the contractor develops the SOW does not tie the Government to the SOW. With the SOW generated by the contractor the contention is that the requirement does not change as long as the initial SOO is sufficiently broad-based. (Ref 19, 20)

3. Expected Benefits from Use of Intended Strategy

The IDIQ will allow the Government the flexibility of awarding follow-on production units, via issuance of delivery orders, on a Cost Plus Incentive Fee (CPIF), FPI or FFP basis. The pricing basis for each simulator will be determined based upon the availability, completeness, and applicability of technical and cost data for these or similar units. The goal is to move to a FFP arrangement for production simulators as soon as adequate configuration baseline stabilization is achieved. (Ref 19)

The program office envisioned an Indefinite Delivery/Indefinite Quantity (IDIQ) type of contract. This type of contract is intended to allow flexibility in defining the scope of work required for follow-on pattern and production units and to assure technical compliance and affordability. This also facilitates appropriate contract type selection for each simulator acquisition, depending on the stage of development. It also allows for the adjustment of types and quantities of simulators acquired during the eight-year period of performance.

The incremental commitment of funds would serve to mitigate risk. Evolution of requirement in this software intensive business frequently leads the program office into the position of having to determine if the "contractor can do it." Mitigation is accomplished through commitment of funds in increments via delivery orders tied to discrete elements of the overall acquisition.

4. Execution of Strategy

A SOO outlined the Government's requirements. The contractor generated the Statement of Work, specification and the necessary Contract Data Requirements List. The original pattern unit for each device is to be designed and constructed by a fully collocated Integrated Product Team (IPT), consisting of the successful offeror and various Government agencies and their representatives. The successful contractor then becomes responsible for the construction, testing, shipping, and installation of any follow-on devices.

The pattern unit simulators will be designed utilizing spiral development. The devices are to simulate the design basis aircraft per the priorities laid out in the SOO. The contractor is expected to maximize commonality across all trainer platforms. The training devices are required to be open and non-proprietary. Maximizing use of commercial and Non-Developmental Items is emphasized.

The program office seeks an innovative solution to meet the requirements of the MCASMP acquisition. A competitive contract award will be made based on a trade-off evaluation. An IDIQ contract will be awarded to the responsible offeror whose offer is determined to provide the best combination of technical approach, past performance, cost and subcontracting plan. The trade-off evaluation approach is intended to allow the SSA flexibility in selecting the proposal that best meets Government requirements.

A SOO was provided to the offerors as part of the RFP. The Government requested technical (including ILS and program management), past performance, and cost proposals from interested offerors. The subcontracting plan, required from competing large businesses, is also a trade-off factor. Each offeror's technical proposal consisted of a SOW and recommended contract data. The technical and past performance proposal areas are equally important, followed by cost and the subcontracting plan in descending order of priority.

Oral presentations were used for the presentation of the program management portion of the technical proposal. Oral presentations were to demonstrate the offerors' proposed IPT structure, including but not limited to specific utilization of Government resources and a transition plan addressing how the IPT structure would accommodate concurrent initial pattern unit development at Government and offeror facilities.

For the technical factor a proposal rating and proposal risk were assessed. The proposal rating depicted how well the proposed approach met solicitation requirements. The technical evaluation for the second delivery order was an evaluation of the system design proposed for the second delivery order. The proposal risk addressed potential impacts of the proposed approaches

on performance, schedule, and cost in achieving solicitation requirements and program objectives. For past performance, a past performance risk assessment was made. PPI included subcontractor and team member relevant demonstrated past performance and systemic improvement. Offerors not required to submit a subcontracting plan were given a "satisfactory" rating in the subcontracting plan evaluation area.

If an offeror had high past performance risk, past performance became a key selection criterion. To encourage large businesses to expand subcontracting opportunities for small and disadvantaged businesses, a small business plan evaluation factor was included to increase the trade-off rating for subcontracting goals to small and disadvantaged firms.

A formal source selection process was used for this program. A Source Selection Evaluation Board (SSEB) evaluated the technical proposals, cost/price, past performance, and subcontracting plan and provided its finding to a Source Selection Advisory Council (SSAC). The SSAC, consisting of senior members of each competency, reviewed the SSEB input and performed a comparative analysis among the proposals received, providing a proposal analysis report to the SSA. The SSA determined the offeror to award.

Delivery Orders (DO) issued under the IDIQ contract will be priced on a CPIF basis with incentive being placed on cost only. These DOs will encompass the training systems analysis and definition effort and the production of the first four initial pattern units. A CPIF pricing arrangement is considered necessary due to technical, schedule, and cost risks. These technical, cost, and schedule risks make the uncertainties involved in contract performance too great to permit costs to be estimated with sufficient accuracy to use a fixed-price contract. Offerors were required to provide a cost/price proposal for FY 00 and 01 requirements as part of their proposal.

The contract contains a six-year period for issuance of DOs. The use of options is not considered to be in the best interest of the Government. The technical baseline for the follow-on production units and the unique trainer requirements associated with these simulators will not be accurately known until the Government is ready to issue the requisite DOs for follow-on units.

The minimum award expected was the initial procurement of training system analysis and definition to be acquired under the first DO, estimated to cost $6 million. This award was made simultaneously with the IDIQ award. The ceiling amount for this program is $300 million. Funds for other than the stated minimum quantity are to be obligated at the time of individual DO issuance, during FY 00 through FY 05.

The Government stated upfront that it intended to evaluate proposals and award a contract without discussions with the offerors, reserving the right to conduct discussions and request proposal revisions if it was determined necessary.

5. Challenges and Advantages of Strategy

Providing a budget to the contractor for Government work-years in an EVMS. This task, necessary to the full implementation of the IPT, illustrates the difficulty inherent in accounting for and allocating funds budgeted to a program. The program office recognized that the best answer is to have Government employees working in IPTs. Providing oversight and employee control through compensation is complicated with this arrangement.

The positive side to the use of Government labor is that it serves as a substitute for competition. The existence of Government labs and workers willing to undertake development efforts of this sort, regardless of ability carries weight with industry similar to that of another competitor. The option to terminate at any point (coincident with the end of a delivery order) also compensates for awarding the IDIQ contract to a single contractor. Maintaining competition through multiple awards of the first delivery order is another method, if not overly constrained by costs, to maintain competitive pressure to perform.

Establishing joint Government and industry IPTs involved a significant amount of what is commonly referred to in teamwork literature as "forming, storming and norming." This chaotic period where the team resolved initial issues as to how best to effectively accomplish tasks assigned resulted in the perception that the program office was not making appropriate progress.

Effort was required to convince the team, the program office and senior management that the program was not "flailing" and making progress towards achieving the objectives of the program. This effort required identification, communication and understanding of the Government's role, as well as an objective assessment of the Government's capability.

Keeping two contractors in the design phase meant worrying more about being fair. The decision to award the first delivery order to a single contractor was bounded by two factors. The first was the cost of the second contract. The second was the perception that the real cost of having two contractors performing training systems analysis and design outweighed the marginal benefit of possibly integrating another better answer into the solution. The program office felt that these costs would be measured as much in dollars as in oversight and added protest avoidance type behavior on their part.

Oral presentations made on two of four evaluation criteria resulted in de facto elevation of these two factors. Two of four equally weighted evaluation criteria were program management and requirements analysis. These two factors were included in oral presentations. This resulted in these two factors becoming the biggest discriminators between contractors during source selection.

Advantages achieved through the use of an IDIQ contract include flexibility in defining the scope of work required for follow-on pattern and production units, assurance of technical compliance and affordability. Utilization of IDIQ contract type with incremental commitments with contractors also facilitated appropriate contract type selection and adjustable types and quantities of simulators acquired.

Organizational inertia prevented full tailoring of acquisition strategy. The program office desired to tailor their program to most efficiently meet their objectives. The program office was open to ideas as to how best to streamline and tailor their program. Shepherding a standard acquisition approach through approving levels at NAVAIR took 18 months. Operating under

time constraints mostly derived from funding timelines precluded the program office from bucking the system to further tailor their approach.

E. JOINT DIRECT ATTACK MUNITION (JDAM)

The JDAM program was started after operation Desert Storm in 1991. During operation Desert Storm a need was recognized for more accurately delivering the thousands of unguided munitions in military stockpiles. The Government requirement was stated as a need for increased accuracy munitions usable in all possible weather conditions from a wide variety of aircraft. The vision was to convert gravity bombs into precision munitions with strap on components. The collection of strap on components to convert one bomb is called a tail kit. (Ref 22)

Separate Navy and Air Force programs were working similar programs independently. In 1991, these programs were merged to form JDAM. The Air Force was appointed lead program manager. Initially, the DoD planned to purchase 40,000 tail kits.

JDAM was designated a Defense Acquisition Pilot Program (DAPP) in accordance with the Federal Acquisition Streamlining Act of 1994. This designation authorized relief from numerous DoD regulatory requirements. In the case of JDAM, 25 FAR and 25 DFARS waivers were granted. The most significant waiver was authority to use commercial practices (Ref 23).

DAPP designation spurred program management to utilize new approaches to conducting an acquisition. Waivers were not needed for all of the approaches used, however, many proposed approaches were outside of practices normally encountered in a traditional Defense acquisition. Examples of different approaches incorporated into the JDAM program include: (Ref 23)

- Use of a rolling down select process emphasizing continuous information exchange between the Government and industry partners

- Streamlined oversight of the program and contractors
- Use of a commercial-like warranty covering a 20-year period
- A long term Government/contractor relationship built on trust with aggressive use of IPTs that included Government personnel on industry teams at contractor sites
- Program and contractor management at the system specification level
- Use of contractor formats for most data submittals, program reviews, design reviews and earned value reporting
- Use of long-term prime/subcontractor relationships

1. Intended Strategy

Two Engineering and Manufacturing Development (EMD) phases were used in sequence. Phase I EMD objectives were to reduce manufacturing risk and projected Average Unit Production Price (AUPP). Phase I was scheduled to take 18 months to complete. Phase II EMD objectives were to complete development and operational testing. The phase II EMD contract was a cost-plus award fee contract. This contract included economic order quantity options for the first two production lots. Production price commitment curves for minimum and economic order quantities were included for lots three through five.

2. Barriers to Use of Intended Strategy

Military regulations and specifications typical to most defense acquisition programs inhibited innovations.

The JDAM program began using a traditional acquisition approach. As discussed in the Arsenal Ship case, this approach inhibited sound business evaluation of contractor performance. An excessively formal process with starts and stops punctuated by "over the wall" communication between buyer and seller mark this traditional process. Government feedback to contractors can be met with uncertainty regarding the appropriate response. One choice of response is to ignore the feedback. (Ref 21,22,25)

While under consideration for designation as a Defense Acquisition Pilot Project, there was resistance to using commercial item provisions proposed for the FAR in the JDAM program. The Deputy Under Secretary of Defense for Acquisition Reform was responsible for recommending pilot projects. The direction the Acquisition Reform office was taking with Congress was to use programs procuring "semi-commercial" products as pilots. In this case defining semi-commercial products as items normally purchased by commercial firms. JDAM was procuring items with military applications (bomb conversion kits). By limiting pilot projects to semi-commercial items program managers of military programs could likely conclude that this commercial approach would not be applicable to weapons systems that are not semi-commercial. Success in the JDAM program using a commercial approach was proposed as a means to dispel this notion. (Ref 22)

At the beginning of the JDAM program, incentives were not in place to properly drive cost reduction. The cost-based approach used had the contractor compiling reams of data to show the cost of an item. If an item cost $1,000 to build and 10% profit was provided for, the Government would pay a total of $1,100 for the item. If the contractor subsequently reduced the build cost to $900, the profit would be $90 with a total cost to the Government of $990. The contractor reduced profit with increased efficiency. (Ref 22)

Government experts lacked currency of their authority relative to technology. IPTs that proposed alternate solutions for processes experienced this. In some cases, Government experts who were technologically current several generations of technology ago had one perception on a specific issue. When confronted with alternate processes that did not mesh with dated perceptions, responses included increased resistance to the alternate process. Organizational inertia manifested itself in this manner with potential to cause cost overruns. (Ref 22)

3. Expected Benefits from Use of Intended Strategy

A sensible evaluation of contractor performance was an expected benefit in the JDAM strategy. Structuring contractor feedback in the rolling down select would enhance communication between the Government and industry. (Ref 25)

The rolling down select process forced a match between Government feedback to contractors and down select evaluation criteria. This had two important outcomes. First, the Government had to carefully consider what was most important in the evaluation for down selection. Second, before the evaluation for the actual down select took place, the Government had practiced evaluating contractors against the evaluation criteria. The expected benefit is an increased likelihood of selecting the best value contractor as opposed to picking the contractor with the most polished proposal. (Ref 25)

DAPP Designation permitted JDAM to purchase military products as if they were commercial items. Regulations, specifications and reports required in traditional acquisition programs were minimized. The expected benefit is cost reduction. (Ref 24) Metrics that could be traced to cost, schedule and performance were used and included: (Ref 23)

- Program cost including Average Unit Procurement Price (AUPP)
- Cost estimate change rationale
- Program office staffing
- Operational performance
- Unit Cost Comparison (JSOW/JDAM Guidance Control Units)
- Program funding stability
- Would cost analyses
- Regulatory/statutory relief

The expected benefit of using these metrics was reduced program cost compared to the baseline estimate. Additional expected benefits included paperwork reduction and streamlined oversight.

4. Execution of Strategy

JDAM started out as a traditional program. Prior to DAPP designation it was conducted as a traditional acquisition program. This included a portion of the RFP cycle. (Ref 22)

JDAM implemented CAIV in its phase I selection criteria by assigning the most weight to affordability (Ref 24). The DoD Acquisition Reform Office was promoting CAIV. The JDAM program office interpretation of CAIV was that as long as their five key criteria were met, everything else was fair game for changing to lower cost. In this manner the contractor could manage its own costs. IPTs worked with suppliers to analyze and eliminate or reduce cost drivers in each system component. (Ref 22)

Prior to phase I EMD the program office surveyed best practices in commercial companies. Specifically targeted were processes and practices between buyers and key suppliers. Findings of the survey were: (Ref 24)

- Buyer-seller relationships tended to be collaborative rather than adversarial
- Buyer-seller relationships were often long-term and exclusive
- Contract negotiations normally focused on the price charged to the buyer rather than the cost incurred by the supplier
- Contract documents were usually short and simple
- Contract requirements generally did not change once they were established
- Buyers seldom tried to dictate to suppliers how they should do their jobs
- Past performance played a big part in the selection of suppliers

These benchmarks were implemented as the following program goals: (Ref 22)

- Government/supplier integrated product teams (IPTs)
- Performance based, head-to-head competition
- Rolling down select (three report cards during competitive phase)
- Allowing the contractor control over the technical data package
- Requiring a contractor-supplied warranty
- Minimal paperwork and limited, streamlined oversight
- Negotiations based on supplier price, not cost
- Primary award criteria based on past performance and best value
- Allowing trade-offs of price for performance criteria (except for a few live-or-die criteria)
- Firm fixed-price production contract
- Use of commercial products

In April 1994, two out of five competitors were awarded phase I EMD contracts. Martin Marietta Corporation and McDonnell Douglas Aerospace were the prime contractors. (Ref 24)

JDAM was designated a DAPP 11 days after phase I EMD contract award (Ref 24). In August of 1994, the program office encouraged the contractors to rewrite their initial 100-plus page SOW. The desired product was a two-page SOO. The contractors deleted the majority of the paper deliverables, military standards and specifications (Ref 22). In Fall 1994, USD (A, T&L) accelerated the program by approximately 18 months to field improved weapons as soon as possible.

Emulating commercial practices, program managers crafted a framework of incentives for contractors to meet performance and price goals. If the contractor kept the price below that it had committed to, the following rewards applied: (Ref 24)

- It did not need to submit cost data justifying its price or technical proposals

- It had complete control over the system configuration so long as all specifications were met
- It had access to Government assistance in reducing costs without being obliged to pass on savings in the form of lower prices
- It did not have to deal with direct Government oversight of its plants or production processes
- It did not have to worry about the Government seeking a second source that would compete for the business
- It had exclusive responsibility for repairing and maintaining the product
- It received an additional fee for exceeding the accuracy and reliability specifications

The opposing group of incentives was used to improve the level of contractor security and profit when contrasted to traditional acquisition programs. If the price rose above that it had committed to, the following sanctions applied: (Ref 24)

- It had to provide detailed cost and pricing data to the Government
- It had to provide detailed technical data to the Government suitable for preparing a reprocurement
- It had to develop an alternate production source at no cost to the Government
- It lost configuration control over the system, which reverted to the Government
- It lost any fees it might otherwise have collected as a reward for surpassing accuracy and reliability specifications
- It potentially lost the responsibility for repairing and maintaining the product
- It potentially lost the freedom from in-plant and in-process oversight by Government inspectors

The missile development industry has an organizational history of innovation and teamwork. A large number of the engineers that made up industry program offices were schooled in this teamwork-oriented environment. McDonnell Douglas was functionally

organized. The Government decision to use IPTs drove McDonnell Douglas to reorganize in a way that facilitated the use of IPTs. (Ref 22)

Through their actions and words, the program office initially communicated to the contractors that the philosophy was "perform to plan." During phase I EMD a shift in philosophy emerged, and AUPP for the first two productions lots became the ultimate evaluation criteria. At this point in the acquisition, control of the Technical Data Package (TDP) was given to the contractors to assist them in their cost control efforts. Meeting key performance requirements provided the framework from within which the TDP could be modified. (Ref 22)

The award fee and down select criteria had evolved from a traditional source selection to a rolling down select (Ref 22). Contractors received formal feedback three times during phase I EMD. Color-coded grades based on down select evaluation criteria were given to the contractors in open discussions. Grades were assigned based on Government perception of how well output met expectations vice a relative standing with competitors. The feedback given was factored into the final selection decision. The desired outcome of this process was for the SSA to receive self-reported progress from the contractors and to provide opportunities for contractors to improve their performance (Ref 23).

The initial design phase (phase I EMD) was successful. The next phase, phase II EMD, was more difficult. Fabrication and extensive testing were included (Ref 22). The phase II EMD award decision was based on the AUPP and meeting the key performance criteria (Ref 22). McDonnell Douglas was selected as the phase II EMD contractor in October 1995 (Ref 24).

JDAM production rate is expected to exceed 1000 kits per month during production. The DoD plans to buy 87,496 JDAMs for use by the Air Force, Navy and Marine Corps over a ten-year production period. Export licenses have been approved and significant international sales are expected.

5. Challenges and Advantages of Strategy

Candid discussions with contractors and well understood evaluation criteria resulted in reduced costs and cycle times. Phase I and II contracts were awarded with 30 percent less effort than expected and bid and proposal costs were reduced by 50 percent (Ref 22, 23). The unique structure of the acquisition facilitated reduced program office staffing (Ref 23). Contract administration measured in hours was reduced 85 percent to date (Ref 23). AUPP was reduced from $40,000 to $14,000. R&D costs were reduced from $380 to $310 million. The development portion of the program was shortened by 16 months to a total of 30 months. The cycle time of the entire program has been reduced from 15 to 10 years. (Ref 22) The total cost avoidance predicted for JDAM over the ten-year production cycle is $2.96 billion (Ref 23).

Increased communications minimized the potential for protest from eliminated competitors (Ref 22). Typically, Government response to contractor proposals follows the formal source selection process. This limited response to proposals is recognized as an underlying cause of award protests. The Government's desire to avoid the risk of protests often results in excessive documentation requirements. This was also avoided (Ref 22)

Maintaining control of costs in the bureaucracy of defense acquisitions was a challenge during execution of the JDAM program. When the JDAM program was initiated, CAIV was a proposal that had not been put into practice (Ref 22, 24).

Program office manning was a challenge. The aspect of manning that presented a challenge was filling positions with change-minded individuals open to operating with innovative business practices. Managers were needed that believed that alternative processes could work (Ref 24). Corporate Defense acquisition memory includes cases of managers with insufficient understanding of technical and other issues to guide programs to success. A potential result of this circumstance is meeting systems requirements with either prohibitive costs or difficult to manufacture products. Including all relevant Government personnel while maintaining teamwork and open mindedness is the challenge. DAPP designation provided

opportunities to the JDAM program that required overcoming organizational resistance to change. Difficulties of this nature were overcome in the JDAM program with strong interpersonal communication at all levels and willingness to take risks.

Phase I successes resulted from the application of changed behavior patterns. Personnel were not sufficiently rewarded for these new behaviors. Close relationships built in phase I migrated back to less collaborative forms. The program office was under pressure to achieve success in phase II EMD similar to that seen in phase I. Workforce incentives have not been established to sustain continued similar efforts. (Ref 22)

The rolling down select feedback process provided stronger incentive for contractors to focus their efforts than either incentives or award fees (Ref 25). This can be attributed to heightened contractor interest in a long-term relationship as opposed to earning award fee on the instant contract.

The likelihood of selecting the best value contractor as opposed to picking the contractor with the most polished proposal was increased. The rolling down select process forced a match between Government feedback to contractors and down select evaluation criteria. This had two important outcomes. First, the Government had to carefully consider what was most important in the evaluation for down selection. Second, before the evaluation for the actual down select took place, the Government had practiced evaluating contractors against the evaluation criteria. While significant workload was required to use this process, it is unlikely that the workload was more than monitoring and administering an award fee. (Ref 25)

Contractor performance was motivated towards appropriate areas through the feedback process used. DAPP Designation deregulated the JDAM program. Alternative control mechanisms were required. McDonnell Douglas connected rolling down select grades directly to individual compensation. Bonuses were based on color grades received. (Ref 22)

Using Commercial Off The Shelf (COTS) products reduced the time and expense of development. Although as a whole militarily unique, over 80 percent of JDAM components are COTS. Not using military regulations and specifications facilitated this. (Ref 24)

Full CAIV implementation required a modified approach. The following principles were critical to achieving maximum benefit from CAIV: (Ref 24)

- Realistic acquisition and life cycle cost objectives had to be stated at the outset and maintained
- Performance requirements and schedule goals against which cost was being traded off had to be clear and no more demanding than absolutely necessary
- Military specifications had to be minimized so they did not interfere with using commercial products and processes
- There had to be rigorous metrics and methods for tracking program progress
- Contractors had to be motivated to adhere to their price and performance commitments
- The program office had to be manned with personnel who possessed experience bases that facilitated their ability to understand the CAIV vision

An advantage achieved is the commercial like warranty. The JDAM warranty requires the contractor to repair or replace any kit that fails within the specified shelf life (20 years) and service life (5 years) periods. The warranty applies to all production lots. On the first four lots, a repaired or replacement kit must be shipped within one business day after official notification that a failed unit is being returned by the Government. 40 business days are allotted for subsequent production lots, with the contractor paying all replacement and shipping costs. (Ref 24)

A challenge facing a DAPP and other pilot projects is a lack of guidance on how to proceed (Ref 22). JDAM program managers sought first to understand the intent of the pilot. JDAM program managers believed the intent was to conduct a Government acquisition in the

manner of a commercial enterprise. A survey identified best practices that were then used as program goals. (Ref 22)

A challenge facing the JDAM program was workforce and industry partner willingness to change (Ref 22).

Subcontractors supplied over 80 percent of the components that made up JDAM. Involving these suppliers in the CAIV process was a challenge. Facilitating open and collaborative communication overcame this challenge. Non-disclosure agreements facilitated openness in communications. Program management took the first step by sharing cost goals and tracking charts which set a precedence for open communications. (Ref 22)

F. CHAPTER SUMMARY

The four programs profiled in this Chapter share a common theme of innovation and the attempt of some form of phasing in source selection. The next Chapter will take an in-depth look at source selection policy and procedures at the NAVAIR.

Further analysis of the points noted in the case studies in this Chapter will be accomplished in Chapter V.

V. NAVAL AIR SYSTEMS COMMAND

A. INTRODUCTION

NAVAIR is one of three main hardware systems commands utilized by the Navy to procure weapon systems.

NAVAIR is organized using a team concept. Six organizations make up the team: NAVAIR; Naval Inventory Control Point (NAVICP); Program Executive Office, Air Anti-Submarine Warfare, Assault, and Special Mission Programs PEO (A); Program Executive Office, Tactical Aircraft Programs PEO (T); Program Executive Office, Strike Weapons and Unmanned Aviation PEO (W); and Program Executive Office, Joint Strike Fighter PEO (JSF).

The Naval Aviation Systems Team (TEAM) considers itself to be a partner with industry. The TEAM develops, acquires, and supports naval aeronautical and related technology systems for use by operating forces. Their stated objective is to provide technology solutions that increase warfighter capabilities and effectiveness in future warfighting scenarios.

Products and services provided to customers include: Navy and Marine Corps aircraft systems; air-launched weapons systems and subsystems; airborne electronics systems; air-launched underwater sound systems; airborne pyrotechnics; astronautics and spacecraft systems; airborne mine countermeasures equipment (except for explosives, explosive components, and fusing); aeronautical drones and towed target systems, including related ground control equipment and launch and control aircraft; meteorological equipment; overhaul and modification of all Naval aircraft/engines; operation and maintenance of weapons training ranges. Total life cycle support is provided and includes: research, design, development, and engineering; acquisition; test and evaluation; training facilities and equipment; repair and modification; and in-service engineering and logistics support.

Establishing a source selection strategy at NAVAIR for major acquisitions is accomplished jointly by either program managers or contracting officers working with source selection resident experts. These resident experts operate out of an office physically separated from program management and contracting personnel. This source selection body is referred to by their organizational code, NAVAIR 4.10.

A Source Selection Policy Board (SSPB) meets periodically to discuss and effect improvements to source selection. Consistency in source selection procedures is their official objective. The SSPB is chaired by the Deputy Commander for Acquisition and Operations. The board is comprised of senior representatives from the Assistant Commander for Contracts, the Assistant Commander for Research and Engineering, and the Office of Legal Counsel (Ref 26). Any changes to source selection policy or procedures have to be approved by the SSPB (Ref 28). Execution of the source selection policy board is seen as an ad hoc approach by members of the NAVAIR contracting competency (Ref 30).

B. CURRENT SOURCE SELECTION STRATEGIES

Source selections are conducted utilizing one of three general methods; formal, tailored and Competitive Award Panel (CAP) (Ref 26).

Dollar value thresholds determine which method to use. Formal source selection is used for ACAT I and II programs (major systems). Tailored or CAP are used for acquisitions that are not major systems but are expected to obligate more than $30 million in RDT&E funds and $150 million in procurement funds. CAP is used for acquisitions expected to obligate less than $30 million in RDT&E funds and $150 million in procurement funds (Ref 26). The decision of which process to utilize is made at the program level IPT (Ref 29).

The formal source selection procedure lays out an evaluation group structure. This group structure is managed by NAVAIR 4.10 and evaluates proposals and recommends a source for contract award (Ref 26). Approximately five percent of competitions utilize this process, or

somewhere between four to twelve source selections per year (Ref 29). The majority of contracts awarded utilizing this process are cost plus types (Ref 29).

Tailored source selections use a streamlined version of the formal evaluation group structure. This structure is managed by NAVAIR 4.10 (Ref 26, 28). Visibility of the acquisition and the amount of program risk are factors considered when choosing between a formal or a tailored source selection (Ref 26).

The CAP process is a further streamlined process. NAVAIR 4.10 does not manage this process. Generally, the SSA is supplied by the program office. The preference is to appoint a SSA with experience in competitive negotiated acquisitions, and to provide the SSA with technical and other support (Ref 26). SSA is meant to be delegated as low as possible within the program. The delegation level is outlined in the acquisition strategy, which is staffed by NAVAIR 4.10 (Ref 26, 28). The PCO generally chairs the CAP and is the SSA. The SSA could also be the program manager.

IPTs are used in all acquisitions. The lead IPT determines source selection evaluation team membership.

Early planning and preparation is emphasized in the source selection process. Noteworthy in instructional guidance on what constitutes early planning is the finalization of all program requirements (Ref 26).

Source selections generally follow these steps: (Ref 26)

- Procurement IPT agreements
- Acquisition strategy
- Synopsis
- Draft solicitation
- Pre-solicitation conference

- Source selection plan
- Solicitation
- Pre-proposal conference
- Award on initial offers or determination of competitive range
- Site surveys
- Pre-negotiation business clearance
- Discussions
- Request for final proposal revisions
- Evaluation documentation
- Selecting a source
- Post-business clearance
- Contract award
- Debriefing

Fair and impartial evaluation of proposals is the expected outcome of having and using a systematic and comprehensive source selection process. The best value contractor is sought. Resolution of offeror issues pre-award and considering all relevant factors while evaluating for best value is intended to avoid protests. (Ref 27) Protest avoidance and a focus on the ability to award without discussions permeates source selection (Ref 29).

Evaluating proposals with point systems is not done. Normally, adjectival rating systems are used. Point systems allow the possibility of masking critical deficiencies. Adjectival systems provide mechanisms to highlight discriminating factors between proposals and can better respond to unanticipated proposal content (Ref 27).

Past performance is used as a separate evaluation factor. The intent is to weed out offerors more skilled in proposal writing than performance of work. Using PPI provided by parties other than the offeror is stressed. (Ref 27)

Cost segregation is emphasized in proposal evaluation. Proposal costs are generally not made available to technical, past performance or other evaluation teams. This is intended to prevent cost from influencing SSEB evaluations in specific areas. (Ref 27)

Senior management at NAVAIR tends to favor the formal source selection process (Ref 28, 29, 30). This bolsters the entrenchment of rigid application of procedure in NAVAIR 4.10. Highly technical, complex and high visibility acquisitions are seen as needing an engineering focus (Ref 28). NAVAIR 4.10 was established in an engineering discipline in the 1950s after a sustained protest due to mistakes in the technical evaluation. These mistakes were made as a result of a lack of technical understanding on the part of the PCO and SSA (Ref 28).

The placement of NAVAIR 4.10 forms the underpinning of a philosophical argument concerning organizational placement of the source selection experts (Ref 28, 30). One train of thought is to have a balance of power in source selection between engineering and business elements. NAVAIR 4.10 is an engineering discipline, with membership made up predominantly of personnel with backgrounds in engineering disciplines. The opposing train of thought is that source selection should have a more business or contract oriented position, staffed with personnel having business backgrounds and organizationally positioned outside of the engineering field either in contracts or a financial area (Ref 30). NAVAIR 4.10 as currently structured serves as the "honest broker" in the balance of power (Ref 28). NAVAIR 4.10 leaders interpret their main value to be a full understanding of the source selection process and the ability to refine it to a rigid structured process (Ref 28).

C. ORGANIZATIONAL EFFORTS TAKEN TO IMPROVE SOURCE SELECTION

1. Source Selection Policy Board

Differences in program relationships with NAVAIR 4.10 are spread along a spectrum from adversarial to working together (Ref 28). Differences also exist between programs in execution of intended strategies and regulations (Ref 28, 29). NAVAIR 4.10 looks for policy

groups embedded in programs to act as referees between programs and NAVAIR 4.10 and to maintain consistency in application of source selection methodology and procedural execution (Ref 28). The SSPB is the forum for minimizing differences between programs and acts as referee. The SSPB has been in place for several years. In the past, the SSPB has revised the NAVAIR source selection instruction to reflect changes brought about by the Federal Acquisition Streamlining Act (FASA), the Federal Acquisition Reform Act (FARA), and the FAR Part 15 rewrite (Ref 31). The most recent revision of the NAVAIR source selection instruction is dated 22 July 1999 (Ref 31). Currently, the SSPB meets monthly to discuss current issues in source selection.

2. Use of Past Performance as a Source Selection Evaluation Factor

NAVAIR has undertaken steps to more aggressively use PPI to evaluate potential sources when evaluating offerors for contract award. PPI has been used as a factor by NAVAIR in source selections for approximately ten years. Difficulties in using PPI as a true discriminator resulted in organizational resistance to using PPI until approximately 1998. Specific difficulties included having personnel with sufficient past performance evaluation experience, and the lack of an accessible database of information on contractor performance. The FAR policy shift elevating the use of PPI in source selections and the subsequent DoD requirement for annual assessment reports on contractor performance facilitated overcoming the second difficulty. NAVAIR was a leader in documenting PPI in the Contractor Performance Assessment Reporting System (CPARS).

CPARS is a web-based tool for data basing PPI. A CPAR contains an assessment of a contractor's performance. A CPAR can be positive, negative, or both. It reflects performance during a contract at a specific time. The assessments are supposed to be based on objective facts and supported by data like cost performance reports, customer comments, quality reviews, financial assessments, management reviews, functional performance evaluations, and earned contract incentives.

Prior to implementing CPARS, PPI was predominantly collected through the use of surveys. Surveys have proven to be not very effective in collecting accurate and useful PPI. The mandate for all services to perform annual PPI assessments has generated an improved and more accessible database of PPI.

The difficulty of having sufficient experienced personnel to evaluate contractor past performance has yet to be overcome. Contrasted to technical evaluation, past performance is not as black and white. It is more difficult to arrive at an absolute answer when faced with ranking one firms past performance as better or worse than another. This "squishiness" of PPI, when combined with a risk-averse mindset elevates the level of concern for acceptability of risk in terms of the potential for protests. The structure of program teams and assignment of program personnel to evaluate PPI in source selections has resulted in two difficulties: first, difficulty developing personnel with solid PPI evaluation experience and second, consistently assigning these personnel to source selection evaluation teams.

Currently, NAVAIR source selections weigh PPI equal to other source selection evaluation factors. If not the most important source selection factor, past performance will be equal to the other factors.

3. Price-Based Acquisition Tool Identification and Development

The contracting competency (NAVAIR 2.0) has identified a small group of PBA subject matter experts. These subject matter experts are listed in an online guide that directs contracting and program personnel to those with specific experience in topical areas. The identification and use of this group is intended to promote the use of PBA tools. The expanded use of PBA tools is also intended as a means to further evaluate proposed methods and to take advantage of successful strategies.

Group members are contracting officers with the Harpoon and Tomahawk weapon systems. Both the Harpoon and Tomahawk programs have utilized PBA. In both cases,

awarding contracts using price versus cost data was deemed possible due to the history of the programs. In both cases, the items being acquired had been in production for a number of years, with significant cost history developed and documented. Both programs have stable requirements and configurations.

D. CHAPTER SUMMARY

Elements are in place to take advantage of organizational know-how in source selection. A sound structure consisting of NAVAIR 4.10, the SSPB and the price-based subject matter experts is laid out. Although NAVAIR has taken steps to enhance the use of alternative source selection strategies, such as PBA, the current infrastructure appears to support the status quo of traditional source selection strategies for major systems.

The risk-averse tendency of senior management combined with the rigidity of policy application by NAVAIR 4.10 makes it difficult for programs to step outside of the parameters of past source selections. There are positive and negative aspects of this set of circumstances. On the positive side, source selection is a controlled process, structured in a manner that avoids protests from offerors and results in a fair and equitable evaluation of proposals. On the negative side, innovation is dampened, with incremental improvement being the second most likely outcome of change efforts. The most likely outcome is maintenance of the status quo. Step-gains in improvement through utilization of truly unique or different approaches to source selection are unlikely.

The next Chapter will further develop the analysis of points noted in the case studies outlined in Chapter III. The outcome of this analysis will be applied to Chapter IV observations concerning source selection at NAVAIR. Conclusions will then be drawn concerning implementation of the proposed multi-phase source selection strategy at NAVAIR.

V. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A. SUMMARY OF PREVIOUS CHAPTERS

As a first step in organizing points noted by each program, groupings can made with the following categories; expected benefits, barriers to use, challenges and advantages. Prior to analyzing the points noted for pertinence to either source selection or NAVAIR, they will be grouped to identify common themes.

1. Expected Benefits From Use of Intended Strategy

Figure 3.1 categorizes the expected benefits from the use of intended strategy in each program. The benefits were explained fully in the individual program write-ups. They are represented in Figure 3.1 by brief descriptive bullets. The numbered rows represent cases where similar points were made in more than one program. In the case of expected benefits, there are four such rows. The unnumbered rows depict expected benefits in individual programs that do not necessarily correspond to others in the same row.

The first grouping of expected benefits points out the shared expected benefit of the integration of commercial technologies into Government programs. The second grouping of expected benefits points out the shared expected benefit of improved communication between industry and Government. The third grouping of expected benefits points out the shared expected benefit of cost reduction. The fourth grouping of expected benefits points out the shared expected benefit of increased innovation in requirement refinement, solution options and system design.

Other expected benefits that did not fall into natural groupings are similar to the goals of the proposed multi-phase source selection strategy. These include the empowered industry expected in the Deepwater program. The MCASMP had as expected benefits flexibility in

defining the scope of work and risk mitigation through the incremental commitment of funds. An expected benefit of the Arsenal Ship program was a shortened source selection schedule.

Expected Benefit		DEEPWATER	MCASMP	JDAM	ARSENAL SHIP
Integration of Commercial Tecnologies	1	Leverage proven technologies			New technologies integrated in different ways
Improved Communication Between Industry and Government	2			Sensible evaluation of contractor performance	Improved contractor effort from detailed debriefs
Cost Reduction	3		Affordability	Reduction in cost	
Increased Innovation	4	Increased design innovation			Increased design innovation
Other		Empowered industry	Adjustment of types and quantities/flexibility in awarding follow-on production	Minimal paperwork	Shortened source selection schedule
		Cost sharing in system development	Flexibility in defining scope of work	Streamlined oversight	Protest avoidance
		Fair pricing	Technical compliance		
			Appropriate contract type selection		
			Risk mitigation through incremental commitment of funds		

Figure 3.1. Summary of Expected Benefits From Use of Intended Strategies (prepared by author)

2. Barriers to Use of Intended Strategies

Figure 3.2 categorizes the barriers to use of the intended strategy in each program. The barriers were explained fully in the individual program write-ups. They are represented in Figure 3.2 by brief descriptive bullets. The numbered rows represent cases where similar points were made in more than one program. In the case of barriers, there are five such rows. The unnumbered rows depict barriers in individual programs that do not necessarily correspond to others in the same row.

The first grouping of barriers points out the shared barrier of the traditional acquisition approach and developed mindset of participants in the process. The second grouping of barriers points out the shared barrier of organizational resistance to change. The third grouping of barriers points out the shared barrier of difficulties associated with funding. The fourth grouping of barriers points out the shared barrier of the length of phases. This barrier is usually driven by external events, such as funding. This barrier can result in concurrency when concurrency is not appropriate. The fifth grouping of barriers points out the shared barrier of regulatory guidance.

Other barriers that did not fall into natural groupings are similar to barriers expected during execution of the proposed multi-phase source selection strategy. These barriers include The Deepwater barrier of limiting competition in follow-on phases and the MCASMP barrier of requirement and solution refinement.

Barrier		DEEPWATER	MCASMP	JDAM	ARSENAL SHIP
Traditional Approach	1			Traditional acquisition approach	Usual methods of doing business/mindset of participants
Organizational Resistance	2		Organizational inertia	Organizational resistance to using commercial item provisions	
Funding	3	Funding uncertainty			Underfunding of phase III
Length of Phases	4	Length of phases			Length of phases too short
Regulatory Guidance	5	Agency regulatory guidelines		Military regulations and specifications	Procurement regulations
Other		Limiting Competition in follow-on phases	Requirement and solution refinement Money at risk	Government experts lack of currency of authority relative to technology	Interactions with Navy labs and Participating Managers Inflexibility of execution of plan Stretching of delivery dates

Figure 3.2. Summary of Barriers To Use of Intended Strategies (prepared by author)

3. Challenges of Strategies Used

Figure 3.3 categorizes the challenges of strategies used present in each program. The challenges were explained fully in the individual program write-ups. They are represented in Figure 3.3 by brief descriptive bullets. The numbered rows represent cases where similar points were made in more than one program. In the case of challenges, there are seven such rows. The unnumbered rows depict challenges in individual programs that do not necessarily correspond to others in the same row.

The first grouping of challenges points out the shared challenge of obtaining contractor investment in the early phases of a program. The second grouping of challenges points out the shared challenge of accounting and allocating funding and costs. The third grouping of challenges points out the shared challenge of program office staffing. The fourth grouping of challenges points out the shared challenge of working with a systems integrator. The fifth grouping of challenges points out the shared challenge of working with contractors through repeated down selects. The sixth grouping of challenges points out the shared challenge of staffing program offices with personnel with appropriate skill mixes including a propensity for accepting new methods of doing business. The seventh grouping of challenges points out the shared challenge of working outside of strict regulatory guidance.

Other expected challenges that did not fall into natural groupings are similar to challenges expected in the proposed multi-phase source selection strategy. These challenges include the MCASMP challenge of using PPI as a true discriminator, the JDAM requirement of the Government thinking carefully through source selection and building control mechanisms to shape Government and contractor behavior, and three of the Arsenal Ship program challenges. The three Arsenal Ship challenges are poor understanding of the magnitude of development tasks required, constrained trade space and the stigma of fixed price development.

Challenge		DEEPWATER	MCASMP	JDAM	ARSENAL SHIP
Contractor Investment	1	Contractor funding portion of early contracts			Contractor investment in early phases
Accounting and Allocating	2		Accounting for and allocating budgeted funds	Maintaining control of costs in bureaucratic maze	
Program Office Staffing	3	Contract administration hand off		Program office manning	
Working With Systems Integrator	4	Privity of contract with the firms actually performing work contracted for		Including the supplier chain at the subcontractor level	
Repeated Down Selects	5		Keeping two contractors in design phase		Down select to one contractor
Program Office Skills Mix	6		Management effort to overcome outfall from team "forming, storming and norming"	Required managers to behave differently	
Working Outside Guidance	7			Little or no formal rules for pilot projects	Implementing innovative acquisition strategy as a package
Other			Using PPI as a true discriminator Open system architecture and control over licensing and rights Labor funding in joint contractor/Government effort Team "forming, storming and norming" Oral presentations and factor weighting	Military and civilian personnel not sufficiently rewarded for new behaviors Government required to think carefully through source selection Creation of alternative framework of incentives to discipline Government and contractor behavior Willingness to change	Poorly understood magnitude of development tasks required Constrained trade space Irrevocable unit sailaway price Fixed price development

Figure 3.3. Summary of Challenges of Strategies Used (prepared by author)

4. Advantages of Strategies Used

Figure 3.4 categorizes the advantages of strategies used in each program. The advantages were explained fully in the individual program write-ups. They are represented in Figure 3.4 by brief descriptive bullets. The numbered rows represent cases where similar points were made in more than one program. In the case of advantages, there are five such rows. The unnumbered rows depict advantages in individual programs that do not necessarily correspond to others in the same row:

The first grouping of advantages points out the shared advantage of enabling the use of a smaller program office exercising streamlined oversight. The second grouping of advantages points out the shared advantage of minimizing the potential for protests. The third grouping of advantages points out the shared advantage of integration of commercial technology. The fourth grouping of advantages points out the shared advantage of cost control. The fifth grouping of advantages points out the shared advantage of improved contractor focus and effort.

Other advantages that did not fall into natural groupings are similar to advantages sought through use of the proposed multi-phase source selection strategy. These advantages include the Deepwater advantages of empowered industry and cost sharing in system development. Also included are the MCASMP advantages of flexibility in defining the scope of work and risk mitigation through the incremental commitment of funds. The Arsenal Ship program advantages of leveraging commercial practices and technologies and a shortened source selection schedule are also included. The only reason that the Deepwater program was not cited as having achieved these last two advantages of the Arsenal Ship program is that the program has not progressed far enough yet. It is fully anticipated that the Deepwater program will have these same advantages.

Advantage		DEEPWATER	MCASMP	JDAM	ARSENAL SHIP
Streamlined Oversight	1			Streamlined oversight	Small program office
Protest Avoidance	2			Protest avoidance	Protest avoidance
Integration of Commercial Technology	3	Innovation			New technologies integrated in different ways
Cost Control	4		Affordability	Reduction in cost	
Improved Contractor Focus and Effort	5		Technical compliance	Motivated contractor to work the right issues	Improved contractor effort from detailed debriefs
Other		Empowered industry Cost sharing in system development	Flexibility in defining scope of work Appropriate contract type selection Risk mitigation through incremental commitment of funds Government labor as a substitute for competition Adjustment of types and quantities	Lowered bid and proposal costs Commercial-type components reduced time and expense of development Commercial like warranty	Leverage commercial practices and technologies Shortened source selection schedule

Figure 3.4. Summary of Advantages of Strategies Used (prepared by author)

B. POINTS NOTED IN CASE STUDIES THAT MATCH ELEMENTS OF MULTI-PHASE SOURCE SELECTION

1. Deepwater

Deepwater expected a benefit of empowered industry with the flexibility to leverage proven technologies and new processes to maximize effectiveness. This is an expected benefit of the multi-phase source selection approach. Initially evaluating offerors on PPI and a capability statement while allowing for requirement refinement allows maximum leveraging and incorporation of innovative and commercial solutions.

Deepwater expected to reduce risk through collaborative teaming between industry and Government. A main thrust of the multi-phase source selection is to increase and enhance communication between industry and Government. This enhanced communication is expected to reduce risk.

In Deepwater, the phase I source selection for conceptual design resulted in the award of fixed-price contracts to offerors. The proposed multi-phased source selection aims to achieve this same result through the improvement of up-front planning and risk reduction.

Working with industry teams through a systems integrator lengthened communication lines, a challenge to the Deepwater source selection strategy. These lengthened communication lines hindered the free flow and active interchange of ideas and potential solutions. A goal of the proposed multi-phase source selection is to have open communications with industry before award and through execution of the contract.

2. Arsenal Ship

The Arsenal Ship program's intended methodology of planning smaller pieces by way of phases matches the proposed multi-phase source selection strategy. In the case of Arsenal Ship,

not allocating enough time for planning for follow-on phases throughout the phases hindered the success possible through the use of smaller increments. The multi-phase source selection emphasizes increased planning time and effort to achieve full understanding of the requirement by all parties. This increased understanding is intended as an enabler to better understand the timelines needed and overcome this difficulty. Timeline constraints driven by external forces such as funding or budgeting has the possibility to cause this same difficulty, in spite of fuller understanding of developmental time requirements.

The use of OTA in the Arsenal Ship program was intended to provide the opportunity to create unique system concepts through design tradeoffs within a larger solution space than a traditional approach allows. Relaxation of all acquisition regulations is not a part of the multi-phase source selection, however, it is recognized that select regulatory guidance will be required to be changed to fully implement the proposed multi-phase source selection.

One difference of the proposed multi-phase source selection strategy is using a capability statement vice a full-blown proposal to evaluate offerors. The Arsenal Ship program evaluated phase I offerors in part on how well the offeror demonstrated its capability. The Arsenal Ship program allowed industry to set requirements, which increased design innovation. Evaluating offerors on the basis of a capability statement in the multi-phase source selection strategy facilitates this same outcome.

The underfunding of the Arsenal Ship program presented a significant barrier to success. This underfunding was due to two factors; inadequate analysis of required developmental resources prior to program initiation and poor understanding of the magnitude of developmental tasks required. The proposed multi-phase source selection process is intended to fix this with increased focus on more intense up front planning and collaborative Government and industry effort.

The abbreviated timeline of the Arsenal Ship program drove parallel completion of both design and pricing. As a result, estimates were inconsistent and lacked depth. In the proposed

multi-phase source selection strategy, the difficulty of not really understanding either the program risk or what is needed from a technology standpoint is addressed. Planning and talking with industry is key to resolution of this difficulty.

An expected benefit in the Arsenal Ship program was that continuous interaction with industry teams throughout the design phases would shorten the source selection schedule. This matches the proposed multi-phase source selection's intended outcome.

3. Marine Corps Aviation Systems Master Plan

In the MCASMP, one intention of the source selection strategy employed was to mutually evolve the user's requirements in a dedicated analysis and definition phase. Participants in this phase included the users, industry and the program office. In the proposed multi-phase source selection strategy one goal is to evolve the user's requirements, preferably before contract award or during phase I, before committing to larger dollar contracts.

The MCASMP program office saw system analysis and the design phase as a means to expand design space in their program. System cost and performance tradeoffs needed to be accommodated early on. This matches the goals and strategy of the proposed multi-phase source selection.

In the MCASMP, the nature of the requirement required evolution of the requirement during its definition. This is also seen as a necessity in the proposed multi-phase source selection strategy. The ongoing requirement and solution refinement during the execution of contracts in the MCASMP program hampered the Government's ability to compete contracts. This is another reason that supports using the proposed multi-phase source selection strategy.

An expected benefit of the strategy employed by the MCASMP program was using the incremental commitment of funds to mitigate risk. This is similar to the strategy employed in the

proposed multi-phase source selection, where phases are funded and treated as separable parts of the process.

In the MCASMP program, evaluation of PPI was problematic. Evaluating offerors on past performance is key to utilizing the proposed multi-phase source selection strategy.

4. Joint Direct Attack Munition

The JDAM Program used long-term prime/subcontractor relationships as a key business practice to drive behaviors. This heightened and reinforced the use of past performance as an evaluation tool. The proposed multi-phase source selection strategy also proposes long-term relationships with industry and the use of past performance as key component of offeror evaluation.

A barrier noted by the JDAM program manager was the inability to put together an experienced, innovative team. This same inability, if present, could hamper the ability to use and maximize the potential benefits of the proposed multi-phase source selection strategy.

In the JDAM program, the notion of a rolling downselect was envisioned as a means to enhance the level and focus of communication between the Government and industry during evaluation and performance periods. The proposed multi-phase source selection strategy serves as a means by which to achieve this same heightened level of clarity in communication with industry.

Implementing the rolling downselect process in the JDAM program required the Government to carefully think through what was most important in making source selections and to perform evaluations using the down select criteria prior to the actual down select. This is a key element in evaluating past performance, which is essential to success with the proposed multi-phase source selection strategy.

The JDAM program implemented CAIV, which assumed costs could be controlled if affordability was introduced early in the development process as a key requirement. The proposed multi-phase source selection strategy includes this type of tradeoff in its process.

Before the start of phase I EMD in the JDAM program, the program office conducted a survey of commercial companies to see what practices prevailed in their relationships with key suppliers. A key element of the proposed multi-phase source selection strategy is to understand industry before issuing a contract.

The JDAM program office allowed contractors control over technical requirements and the TDP. Contractors modified the TDP as needed to control costs, and were not required to disclose trade secrets, as long as they met key performance requirements. The proposed multi-phase source selection strategy emphasizes a similar strategy. The use of dedicated Government teams for each industry partner, one method espoused in the multi-phase source selection, also serves to ensure that innovative ideas developed by one source are not inadvertently transferred to competing sources.

In the JDAM program, performance in a prior phase played a critical role in the PPI evaluation when selecting contractors for follow-on phases. One element of the proposed multi-phase source selection strategy is increased communications driven in part by concern over using past performance in an earlier phase to select for the next phase.

Open and clear communications and down select criteria enabled JDAM EMD contracts to be awarded with 30 percent less Government effort and with bid and proposal costs reduced by 50 percent. Similar outcomes are expected through utilization of the proposed multi-phase source selection strategy.

Success with the proposed multi-phase source selection strategy requires changes in incentives used and the way acquisition practitioners think about them. The structured feedback

of the rolling down select process utilized in the JDAM program proved to motivate and focus the contractor on the right issues better than incentives or award fees.

One goal of PBA efforts is to bring in commercial success stories. JDAM components are approximately 85 percent commercial. Using COTS greatly reduced the time and expense of developing JDAM. The proposed multi-phase source selection strategy has the ability to facilitate the use of commercial items in the same manner that the JDAM program did. One of the main ways that the JDAM program achieved this high level of commercial access was by minimizing the use of military regulations and specifications.

C. POINTS NOTED IN CASE STUDIES CONTRASTED WITH NAVAIR SOURCE SELECTION

The four groupings of advantages noted in Figure 3.4 are desired in NAVAIR source selections. As noted in Chapter IV, a significant driving factor in NAVAIR source selection is reducing the risk of protest. This driving factor receives more attention from decision-makers in source selection strategy formulation than other elements. For this reason, this discussion places the most emphasis on this particular advantage.

The advantages of protest avoidance noted by both the JDAM and Arsenal Ship programs mesh with the strongly emphasized goal of protest avoidance in NAVAIR source selection. In NAVAIR source selections, the methodology chosen to achieve an acceptable level of risk in terms of protest avoidance has been to rigidly standardize and uniformly apply a formal source selection process. The proposed multi-phase source selection facilitates protest avoidance in a similar manner to that demonstrated in the Arsenal Ship and JDAM programs. The Arsenal Ship, JDAM and multi-phase approaches share the element of increased openness in the award process. Increased feedback to contractors and offerors during selection for participation in and execution of phases serves to dissuade protests.

Of significance to using the proposed multi-phase source selection strategy at NAVAIR is the identification of barriers to use. Barriers must first be identified before they can be addressed.

Referring to Figure 3.2, the first two groupings of barriers are significant factors at NAVAIR. The usual method of doing business with regard to source selection is clearly laid out and strictly adhered to. This usual method of doing business is entrenched in the mindset of decision-makers as being the right answer for if not all, then certainly a predominant majority of source selections for major systems. The resulting organizational inertia to considering the use of alternate strategies was noted in the MCASMP as a barrier to tailoring the source selection strategy employed. When considering the use, even on a pilot project basis, of the proposed multi-phase source selection, this organizational resistance to alternative strategies may inhibit appropriate selection and application of source selection strategy.

In three of the four cases presented in this thesis, regulatory guidelines were noted as a barrier to innovation in source selection. In considering opportunities to use the proposed multi-phase source selection strategy at NAVAIR, this same barrier is also present. The NAVAIR source selection instruction (Ref 28) provides guidance for tailoring and utilizing other than the formal source selection methodology, but not for major systems acquisition. The multi-phased source selection strategy as proposed also requires exemption from higher-level statutory and regulatory guidance. Because of this, the proposed multi-phase source selection strategy can only be used with specific authority to deviate from published statutory and regulatory guidance. In the case of Deepwater and JDAM, the approach used was to obtain specific authority to deviate from regulatory guidance. In the case of the Arsenal Ship program, blanket authority was obtained to deviate from regulatory guidance through the use of OTA. In the case of the MCASMP, authority to deviate from regulatory guidance was not sought and as a result, source selection strategy options were limited.

In both the Arsenal Ship and Deepwater programs, the length of phases was noted as a barrier to the use of the chosen source selection strategy. External factors such as timelines

driven by funding cycles were a key driver in shortening phases. Addressing the stability and commitment of funds to a program is beyond the scope of this thesis. A second significant factor, arguably the most significant in using the proposed multi-phase source selection strategy, is the ability to dedicate the needed time for early phases. In the early phases, requirements are being refined, solutions are being developed, and significant unknowns are present. As seen in the Arsenal Ship program, tight timelines in early phases can result in contractors preparing proposals for follow-on phases concurrent with completing developmental work and before reaching a full understanding of all elements needed to make accurate estimates and predictions about future capabilities, costs and schedules. In the Deepwater program, these same elements resulted in an extension of the first phase in time, scope and dollar value. A key tenet of the proposed multi-phase source selection strategy is investing more time early on in the program to fully understand the requirements and proposed solutions. The implication for source selection at NAVAIR is not to utilize a source selection strategy whose success depends on a significant up-front investment of time when it is known that external factors will force the abbreviation or compression of schedule.

In contrast to the need for adequate time early in the source selection phases is the advantage noted in the Arsenal Ship program of a shortened source selection schedule. Continuous interaction with industry teams throughout the design phases shortened the source selection schedule when compared to a traditional acquisition approach. In the proposed multi-phased source selection, this heightened level of interaction is also present. Offsetting the need to invest adequate time for early phases, the multi-phase strategy has the capability to shorten the evaluation and selection of contractors when compared to a more traditional approach. The recent revision of regulatory guidance as embodied in DoD Directive 5000.1 complements this approach in emphasizing not starting acquisition programs until requirements are clearly defined and understood, followed by an incremental or evolutionary acquisition strategy. The proposed multi-phase source selection strategy is a good fit inside of this framework.

D. CONCLUSIONS

1. Multi-Phase Source Selection Advantages

Using multiple phases in source selection has distinct advantages. These advantages include freer communication between industry and Government, especially during the pre-proposal stage. Increased emphasis is placed on up front planning. Increased discussions as early as the requirements phase are facilitated. Government and contractors have a clear and unambiguous understanding of the requirement, industry's ability to meet that requirement, and a company's specific approach for doing so. Industry can help the Government tailor requirements to achieve realistic outcomes vice failing to achieve overoptimistic outcomes promised in the process of communicating through constrained channels. This increased understanding has the potential to reduce the level of risk to where fixed-price contracts may be an acceptable risk-allocation method. Regardless of the potential for use of cost or PBA, the increased level of understanding achieved facilitates risk being more appropriately allocated between the Government and its suppliers.

The Government may continue to evolve its requirements during source selection. If the demonstration/validation phase is structured so that prototypes of competing systems are produced and tested, it is possible to make design selection from the competing separate designs without sharing information. Changes to Government requirements that occur during refinement of requirements do not have to be re-competed. This protects intellectual information, as well as promoting industry innovation.

By aligning business practices more closely with those in use in the commercial sector, the Government gains increased access to available technology.

2. Multi-Phase Source Selection Risks

Risks must be addressed in considering the use of the proposed multi-phase source selection strategy. These risks include difficulties inherent in evaluating sources on the basis of past performance and capabilities. In the case of MCASMP, PPI was ambiguous enough to make use of PPI as a true discriminator difficult in source selection. While progress has been made in refinement of the use of PPI in source selection, difficulties still exist. Evaluating offerors on the basis of a capability statement raises concern about ability to perform. Firms well versed in design work and proposal preparation could possibly prevail through multiple phases of source selection. Early phase offeror evaluation may focus more heavily on past performance in executing instant contracts that deal with design. Offerors could make the case that PPI on production contracts is not pertinent at this point. If the design oriented firms prevail, follow on phases leading to production could be limited to competition among firms less suited to production.

Risk is present in the form of potential for inadvertently transferring innovative ideas developed by one source to competitors. Restriction and regulation of communication between industry and Government in traditional acquisitions is a result of efforts to reduce this risk. Increased communications between industry and Government with fewer restrictions is a hallmark of the multi-phase source selection. Flexibility in communication and a shift in thinking about fairness when dealing with offerors is required to mitigate this risk.

Maintaining design competition is costly. As seen in the MCASMP program, carrying competition incurs costs that the program may not be able or willing to sustain. This presents the tradeoff risk of the benefits versus the cost of competition. Achieving better pricing for similar performance is facilitated in the multi-phase source selection process through competition. The cost of this competition needs to be weighed against the benefits of improved performance or reduced cost.

PBA is a controversial subject. The DoD has encountered serious difficulties using fixed-price development contracts in the past. The corporate memory of those difficulties serves to stigmatize use or proposed use of fixed-price development contracts.

3. Multi-Phase Source Selection and Price-Based Acquisition

The proposed multi-phase source selection strategy facilitates the use of PBA in several ways. Use of the multi-phase source selection aids in the development of an appropriate business case analysis for specific acquisitions. Enhanced communication results in more thorough understanding of requirements, solutions and risks. Multi-phase source selection thus alters the risk equation, reducing risks associated with source selection for major systems.

Multi-phase source selection aligns acquisition practices more closely with those in use in the commercial sector, for example, by not requiring changes to requirements to be re-competed. Firms that were previously not interested in doing business with the Government may be more inclined to do so as the result of this change. This broadens opportunities to bring existing commercially available technology to bear against risks.

4. Multi-Phase Source Selection at the Naval Air Systems Command

Actions taken to mitigate risk tend to drive the entire acquisition and set the stage for predominant use of a formal source selection process in major systems acquisitions at NAVAIR.

Utilization of the proposed multi-phase source selection strategy at NAVAIR should be done in acquisitions where there is a high degree of confidence in the ability to determine a fair and reasonable price without obtaining supplier cost data. Multi-phase source selection also fits when the requirement is fluid and is likely to change significantly after information has been exchanged with potential sources. A good indicator of fit is the presence of two or more sources expected to be capable of meeting the requirements. The presence of competitors is not an

absolute requirement. Competition enables PBA, as opposed to being a prerequisite, as seen in the discussion in Chapter II.

If resources are available, contractor-specific Government teams can be formed. This approach was utilized with great success in the JDAM program. This type of team assignment is not absolutely necessary, and may not be appropriate when there is insufficient expertise or resources to support the effort. As seen in Chapter IV, NAVAIR has experienced difficulty in consistently developing and assigning personnel experienced with offeror PPI evaluation. Similar difficulties may be encountered in forming dedicated teams for multiple offerors.

Depending upon the length of time and effort expected to take to complete the early phases, the Government may choose to fund them in part or in whole. If funding is tight, the Government may take extra effort to obtain contractor investment in early phases. The use of multiple phases in source selection can facilitate this, as it did in the Deepwater program.

E. RESEARCH QUESTIONS AND ANSWERS

1. **Secondary Research Question #1**: What is a multi-phase source selection strategy, and how does it differ from present source selection strategies?

The proposed multi-phase source selection strategy initially selects sources determined to be the most qualified by evaluating offeror capability statements. The capability statement includes limited information on past performance, ability to perform, conceptual approach, and a rough order of magnitude price. Government requirements are initially stated as objectives. The Government works with selected sources to refine requirements. Major consideration is given to reducing program risk and taking maximum advantage of commercially available technology. Requirement refinement may be done through one or more phases. The Government may fund all or a part of this phase of the development. Requirement refinement continues until they are understood well enough by both Government and industry to allow sources to propose a firm-fixed price for performance. In each successive cycle, the Government may elect to reduce the

number of sources. In the proposal development and evaluation phase, the only sources eligible to participate are those selected on the basis of their initial submission. If a requirements development phase is conducted, sources may be limited to those participating in the proposal development and evaluation phase. No J&A is required for limiting competition in this manner. The solicitation provides notice to offerors of the extent to which the Government reserves the right to negotiate requirements or terms or conditions different from those stated in the solicitation without amending it. Award can be made to single or multiple offerors. Following receipt of proposals, one or more offerors may be eliminated during the evaluation.

This strategy differs from present source selection strategies in two ways. First, changes to requirements do not have to be re-competed. Changes to the requirement may occur as it is being refined. This may happen during a contract or not during a contract. Second, no J&A is required for other than full and open competition when going into a follow-on phase considering only offerors who were included in prior phases.

2. **Secondary Research Question #2**: How does the multi-phase source selection strategy recommended in the PBA report dated December 1999 differ from multi-phase strategies currently utilized at NAVAIR?

The case study presented in Chapter III on the MCASMP is an example of a NAVAIR source selection strategy. This case was included more as an example of differences between as executed and as desired than as a stand-alone example of a multi-phased source selection. The JDAM program represents a joint program office between the Air Force and the Navy. The Navy component was supplied by NAVAIR. Therefore, it can be said that NAVAIR utilizes multi-phase source selection strategies as presented in the case studies in Chapter III.

As noted in Chapter IV, however, the prevailing organizational culture at NAVAIR favors a traditional source selection strategy in major systems acquisition. In this sense, the multi-phase source selection represents a fairly radical shift in approach from the predominant model in use.

3. **Secondary Research Question #3**: To what extent does use of a multi-phase source selection strategy facilitate PBA?

The most significant way in which the multi-phase source selection strategy facilitates PBA is through increased communication between Government and industry, specifically in the pre-proposal stage. This increased communication, intended to facilitate better understanding of requirements by both Government and industry, reduces risk to the point that offerors can submit firm-fixed price proposals.

4. **Secondary Research Question #4**: What are the potential benefits and risks of utilizing a multi-phase source selection strategy?

Potential benefits of using a multi-phase source selection strategy include freer communications between industry and Government. This facilitates several outcomes: a reduction in risk through better understanding of requirements, industry tailoring requirements to meet Government needs and the use of fixed-price contracts. Other benefits include an increased ability to incorporate leading edge commercial technology and evolution of requirements during source selection.

Advantages achieved as documented in the case studies include smaller program offices, protest avoidance, cost control, shortened source selection schedules and improved contractor performance.

Risk is present in evaluating offerors on the basis of capability statements, specifically in terms of past performance and expected capabilities. Risk is also present in the potential for inadvertently transferring ideas developed by one source to that source's competitors. There is the risk of increased costs associated with carrying competition into further phases of system development.

5. **Secondary Research Question #5**: What conditions best support the use of a multi-phase source selection strategy?

As originally stated by the PBA study group, there are three main indications of when the multi-phase strategy best fits: when there is a high degree of confidence in the ability to determine a fair price without relying on supplier cost data; when the requirement is fluid and likely to change significantly after exchange of information with potential sources and when two or more sources are expected to be capable of meeting the requirements.

Other conditions noted in the case studies that support the use of a multi-phase strategy include: experienced personnel willing to adopt new strategies and engage in revised behavior patterns; time available early in the program to fully explore the requirements and possible solutions during initial phases and organizational willingness to modify regulatory guidance as needed.

6. **Secondary Research Question #6**: How have other Federal procurements overcome barriers and utilized a multi-phased source selection strategy?

The barriers of the traditional acquisition approach, regulatory guidance and developed mindset of participants in the process were overcome in three ways. The Deepwater Project used specific authority to deviate from agency regulations. The Arsenal Ship program used OTA to operate outside of traditional acquisition methods and procedures. The JDAM program used DAPP designation and blanket waivers to deviate from regulations. The mindset of participants was overcome by focused staffing of the program office and tailored training on philosophy and approach.

The barrier of organizational resistance to change was overcome by concerted efforts to keep higher levels of authority informed and through education and staffing efforts similar to those used to overcome the entrenchment of the traditional acquisition approach.

The barrier of difficulties associated with funding was overcome in the JDAM program by demonstrating cost savings throughout the execution of the program. Issues surrounding funding-driven schedules were not overcome by the programs presented in Chapter III. In the case of the Arsenal Ship program, funding issues proved fatal to the program.

The barrier of the length of phases was overcome by modifying schedules, as in the Deepwater example. Attempts to overcome the length of phase barrier by contractors in the Arsenal Ship program resulted in concurrency when it was not appropriate.

The barrier of limiting competition in follow-on phases was overcome through the use of J&As for limiting competition, worked in advance of the actual request by the program office.

The barrier of requirement and solution refinement was resolved by using a sole source or by operating outside of the traditional procurement process.

7. **Secondary Research Question #7**: What barriers exist that preclude NAVAIR from fully utilizing a multi-phased source selection strategy?

Barriers that exist in NAVAIR include timeline restrictions, the usual method of doing business, procedural guidance, mindset of the participants, ability to evaluate offerors on the basis of capability and appropriate staffing of program offices.

8. **Secondary Research Question #8**: What should the underlying NAVAIR procedure be to fully incorporate multi-phase source selection?

Appendix B outlines proposed procedural guidance to use a multi-phase source selection strategy at NAVAIR.

9. **Secondary Research Question #9**: What are the pertinent factors for screening potential programs for utilization of a multi-phase source selection strategy at NAVAIR?

Appendix A outlines proposed factors for screening potential programs for utilization of a multi-phase source selection strategy at NAVAIR.

10. **The Primary Research Question**: What are the essential characteristics of a NAVAIR source selection process that incorporates to the maximum extent possible multi-phase source selection as recommended in the 1999 PBA report?

There are three essential characteristics. First, phases are used to fully understand requirements to the point that program risk is significantly reduced. Second, changes to requirements do not have to be re-competed and may occur as requirements are being refined. Third, no J&A is required for other than full and open competition when going into a follow-on phase considering only offerors who were included in prior phases.

F. RECOMMENDATIONS

The NAVAIR SSPB should be utilized to identify potential candidate programs in which to use multi-phase source selection. The factors presented in Appendix A should be used as a screening tool for programs considered. Specific authority to use this strategy as a pilot in a program should be sought. Lessons learned from the experience gained in this program should be documented and used by NAVAIR and the DoD acquisition reform office to fully evaluate incorporation of regulatory guidance similar to that provided in Appendix B.

G. AREAS FOR FURTHER RESEARCH

1. Survey pending DoD acquisitions to analyze potential for success with the multi-phase source selection strategy using the screening factors outlined in Appendix A.

2. Categorize and quantify metrics for assessing the success of a multi-phase source selection strategy in achieving expected benefits.

3. Assess active programs outlined herein to determine whether expected benefits at the start of the acquisition were achieved by use of the respective phased source selection strategy.

APPENDIX A. PROPOSED SCREENING FACTORS FOR USING MULTI-PHASE SOURCE SELECTION

The presence of the following factors suggests that use of the multi-phase source selection strategy may be appropriate:

1. A high degree of confidence exists in the ability to determine a fair price without relying on supplier cost data.

2. The requirement is fluid and likely to change significantly after exchange of information with potential sources.

3. Government requirements are initially stated as objectives, or in a broad or performance based manner.

4. Potential exists to take maximum advantage of commercially available technology. This potential can be in the form of first-time use of commercial technology in a defense system or in the form of integration of commercial and military technology in previously unused combinations.

The presence of the following factors would help ensure the success of a multi-phase source selection strategy:

1. Adequate time is available to fully accommodate exploratory phases prior to or at the start of the program. Time is needed to fully explore the requirements and possible solutions.

2. Adequate commitment of funds is available to accommodate potential growth in funding requirements during early requirement development phases.

3. Two or more sources are expected to be capable of meeting the requirements.

4. Experienced personnel willing to adopt new strategies and engage in revised behavior patterns are available for staffing the program office. Personnel in both Government and contractor program offices need to be taken into consideration.

5. Organizational willingness exists to modify regulatory guidance as needed to accommodate the intended strategy.

APPENDIX B. PROPOSED NAVAIR MULTI-PHASE SOURCE SELECTION INSTRUCTION

Discussion:

The multi-phase source selection strategy initially selects sources determined to be the most qualified by evaluating offeror capability statements. The capability statement includes limited information on past performance, ability to perform, conceptual approach, and a rough order of magnitude price. Government requirements are initially stated as objectives. The Government works with selected sources to refine requirements. Major consideration is given to reducing program risk and taking maximum advantage of commercially available technology. Requirement refinement may be done through one or more phases. The Government may choose to fund all or a part of these phases. Requirement refinement continues until requirements are understood well enough by both Government and industry to allow sources to propose a firm-fixed price for performance. In each phase, the Government may elect to reduce the number of sources. In the proposal development and evaluation phase, the only sources eligible to participate are those selected on the basis of their initial submission. If a requirements development phase is conducted, sources may be limited to those participating in the proposal development and evaluation phase. No Justification and Approval is required for limiting competition in this manner. The solicitation outlines the extent to which the Government reserves the right to negotiate requirements or terms or conditions different from those stated in the solicitation without amending it. Award can be made to single or multiple offerors. Following receipt of proposals, one or more offerors may be eliminated during the evaluation.

This strategy differs from present source selection strategies in two ways. First, changes to requirements do not have to be re-competed. Changes to the requirement may occur as it is being refined. This may happen during a contract or not during a contract. Second, no J&A is required for other than full and open competition when going into a follow-on phase considering only offerors who were included in prior phases.

Procedure:

1. GENERAL – The multi-phase source selection strategy may be used to procure property or services. Single or multiple awards may be made. Contract award is predicated on obtaining the best value to the Government. This is a competitive process.

2. NOTIFICATION – Notification shall be published in accordance with section 18 of the Office of Federal Procurement Policy Act (41 U.S.C. 416) and subsection (e), (f) and (g) of section 8 of the Small Business Act (15 U.S.C 637), except that the notice must only include:

a. A broad description of the scope or purpose of the procurement. The information provided has to be sufficient enough for potential offerors to make an informed business decision about participating.

b. A description of the basis of source selection as outlined in either subsection three or four of this section, depending on which procedure will be used.

c. A description of the information offerors must submit. This may include information about offeror qualification, the proposed conceptual approach, cost likely to be associated with the proposed conceptual approach, past performance of the source on Federal, state and local, or private sector contracts. Other information that the head of the agency determines is necessary to select sources to enter either the requirements development process or the proposal development and evaluation phase may be included.

d. Any additional information the head of the agency determines is appropriate.

3. REQUIREMENT DEVELOPMENT – The head of the agency may continually develop agency requirements based on exchanges with sources. As part of developing the requirement, the head of the agency may:

a. Request increasingly more detailed information from sources to aid analysis of agency needs and proposed approaches to meet those needs.

b. Work with individual sources on a one-to-one basis to improve their understanding of agency needs and the acceptability and value of proposed approaches for addressing agency needs. Agency information may be shared one-to-one with individual sources. Information shared in a one-to-one exchange has to be shared with other sources participating in requirements development only to the extent that the shared information is necessary to propose to the requirement.

c. Request sources to develop prototypes.

d. Enter into agreements with sources to fund work performed to participate in the requirements development process.

e. Request sources recommend criteria for evaluating further participation in requirements development or participation in the proposal development and evaluation phase, or selection to receive a contract or contracts awarded under this section.

f. Eliminate one or more sources from further participation in the requirements development process and from further consideration for award of a contract under this section.

4. SOURCE SELECTION FOR PROPOSAL DEVELOPMENT AND EVALUATION – The head of the agency shall make the final selection of the sources that are eligible to enter the proposal development and evaluation phase. Sources may be limited to the number determined to be in the best interest of the Government. A protest is not authorized in connection with the determination not to consider a source further for award of a contract, except on the grounds that

the contract awarded is outside the general scope or purpose described in the initial notice published per subsection two of this section.

5. PROPOSAL DEVELOPMENT AND EVALUATION – The head of the agency may conduct a competitive process in which only the sources that participated in the requirements development phase are eligible to participate in the proposal development and evaluation phase. This process shall use the following procedures:

a. Each source selected to enter this phase shall be provided with a solicitation. The solicitation shall state the basis upon which a contract or contracts will be awarded. The requirements and terms and conditions included in the solicitation may be stated as objectives. Agency requirements may continue to evolve during this phase. The solicitation shall provide notice to offerors of the extent, if any, to which the Government reserves the right to negotiate requirements or terms and conditions different from those stated in the solicitation without amending the solicitation.

b. At any time during the development and consideration of proposals, the head of the agency may share agency information with individual offerors on a one-to-one basis to maximize the benefit to the Government of each offeror's approach. Agency information shared with one offeror must be made available to other offerors only to the extent that the shared information is necessary for the preparation of the proposal.

c. Following receipt of proposals, the head of the agency may seek to negotiate with one or more offerors to make proposals more advantageous to the Government. Offerors may be eliminated from further consideration during evaluation and negotiation.

6. CONTRACT AWARD – The head of the agency shall award a contract to the responsible offeror with the proposal that is most advantageous to the Government More than one contract may be awarded if it is in the best interest of the Government.

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LIST OF REFERENCES

1. General Services Administration, *Modular Contracting White Paper*, http://www.itpolicy.gsa.gov, 1997

2. Office of Management and Budget, *Circular A-11, Part 3, Capital Programming Guide*, Government Printing Office, Washington, D.C., July 1997

3. Defense Systems Management College, *Joint Logistics Commanders Guidance For Use Of Evolutionary Acquisition Strategy To Acquire Weapons Systems*, Defense Systems Management College Press, Fort Belvoir, VA, June 1998

4. Defense Systems Management College, *Acquisition Strategy Guide*, Defense Systems Management College Press, Fort Belvoir, VA, December 1999

5. DoD, *Report on Other Transaction Awards for Prototype Projects; Pursuant to 10 U.S.C. 2371, Section 845 (as amended)*, Defense Acquisition Deskbook, February 1999

6. Leonard, R.S., Drezner, J.A. and Sommer, G., *The Arsenal Ship Acquisition Process Experience*, RAND Corporation, Santa Monica, CA, 1999

7. Defense Logistics Agency, *Defense Logistics Agency Federal Acquisition Regulation Supplement Part 15, Contracting by Negotiation, Revision 4*, Defense Acquisition Deskbook, January 1998

8. DoD PBA Team, *Price Based Acquisition*, U.S. Government Printing Office, Washington, D.C., December 1999

9. Naval Air Systems Command, *NAVAIR TEAM Acquisition Guide, 15th Edition*, Defense Acquisition Deskbook, January 1999

10. Will, E., "Paving the Way for PBA," *Acquisition Review Quarterly*, pp. 369-382, Fall 1999.

11. Naval Sea Systems Command, *Source Selection Guide*, Defense Acquisition Deskbook, 1993

12. U.S. Coast Guard, *American's Guardians of the Seas Brochure*, Office of Governmental and Public Affairs, Washington, D.C., 1999

13. Thach, James B., "USCG's Urgent Need for Deepwater Replacements," *Seapower Magazine*, Fall 1998

14. Anderson, M., Burton, D., Palmquist, M. and Watson, J., "The Deepwater Project-A Sea of Change for the U.S. Coast Guard," *Naval Engineers Journal*, May 1999

15. U.S. Coast Guard Assistant Commandant For Acquisition Memorandum, *Request for SAM Waiver; Deepwater Capability Replacement Project*, 26 April 2000

16. U.S. Coast Guard Assistant Commandant for Acquisition Memorandum, *Deepwater Capability Replacement Project Phase 2 Contracting Strategy*, 28 April 2000

17. Interview between J. Watson, Commander, USCG, Deputy Project Manager – Technical, Deepwater Project, Washington, D.C., and the author, 5 July 2000

18. Interview between M. Cooke, USCG, PCO Phase I, Deepwater Project, Washington, D.C., and the author, 5 July 2000

19. Interview between M. Gray, Director, Deputy Program Manager USMC Aviation Simulator Master Plan, Lexington Park, MD, and the author, 6 July 2000

20. Interview between F. McCallister, Lieutenant Colonel, USMC, Program Manager USMC Aviation Simulator Master Plan, Lexington Park, MD, and the author, 6 July 2000

21. Defense Advanced Research Projects Agency, *Arsenal Ship Lessons Learned*, Defense Acquisition Deskbook, 31 December 1997

22. Ingols, C., and Brom, L., *Implementing Acquisition Reform: A Case Study on Joint Direct Attack Munitions (JDAM)*, Defense Systems Management College, http://www.dsmc.dsm.mil/jdam/case/caseintro.htm, May 1998

23. Acquisition Reform Office of the Secretary of Defense, *JDAM Program Overview,* http://www.acq.osd.mil/ar/jdam.htm, September 2000

24. Thompson, L., *The Joint Direct Attack Munition: Making Acquisition Reform a Reality*, Lexington Institute, http://www.lexingtoninstitute.org/whatworks/whtwrks8.htm, November, 1999

25. Interview summary of comments of T. Little, Program Manager JDAM, Eglin AFB, FL, http://www.dsmc.dsm.mil/jdam/contents/terry_little.htm, 1999

26. Naval Air Systems Command, NAVAIRINST 4200.39A, *Principles and Procedures for Competitive Source Selection Process*, 22 July, 1999

27. Flagg, J., *A Look at NAVAIR's Formal Source Selection Process*, Briefing, Patuxent River NAS, MD, 1999

28. Interview between A. Goldberg, Senior Officer, NAVAIR 4.10C Source Selection, Patuxent River NAS, MD, and the author, 7 July 2000

29. Telephone Interview between B. Basham, Senior Officer, NAVAIR 4.10E Source Selection, Patuxent River NAS, MD, and the author, 12 June 2000

30. Interview between M. Stabile, Commander, USN, Head Policy and Process, NAVAIR 2.1, Patuxent River NAS, MD, and the author, 6 July 2000

31. Telephone Interview between A. Fischer, Source Selection Focus Group Contracts Representative, NAVAIR 2.1, Patuxent River NAS, MD, and the author, 18 October 2000

32. Interview between A. Brown, Office of Federal Procurement Policy, Washington, D.C., and the author, 5 July 2000

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